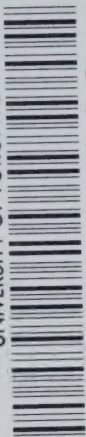


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JOURNAL

OF THE CANADIAN DENTAL ASSOCIATION
DE L'ASSOCIATION DENTAIRE CANADIENNE

JANUARY • VOLUME 34 • No 1 • 1968 • JANVIER

University of Alberta Learns About Man From Jawbone Fossil Cast

The University of Alberta's faculty of dentistry has received a casting of a jawbone fossil from the creature *habilis*.

The jawbone, unearthed in 1964 by renowned anthropologist Dr. L. S. B. Leakey,

Rarely are such fossils distributed, says University of Alberta dental professor Dr. G. Napier, since minute detail of the fossil is reproduced in the casting only with great difficulty.

Teeth, he says, tell us about the owner's diet, possible illnesses and way of life. A meat-eater, for instance, would chase and kill to eat

while a vegetarian would not.

Fossil teeth thus a dental specialist, Leakey, at the University of Nairobi, Kenya, he studied at the University of Cambridge, before going to the U.S. in 1962.

Leakey, Tobias and J. R. Napier, rocked the scientific world when it was reported he had been a user of self-made tools some 1,750,000 years ago—the oldest known direct ancestor of man. The jaw casting is believed to be of a young teen-ager who ate mainly a vegetable diet, stood about four feet tall, made and used tools in powerful hands and erected crude windbreaks. Interestingly, Dr. Leakey says that his pre-man fossils have been capable of speech; the clue is in the shape of the jaw. To *homo habilis*, it was thought the earliest ancestors of man dated back only 500,000 years.

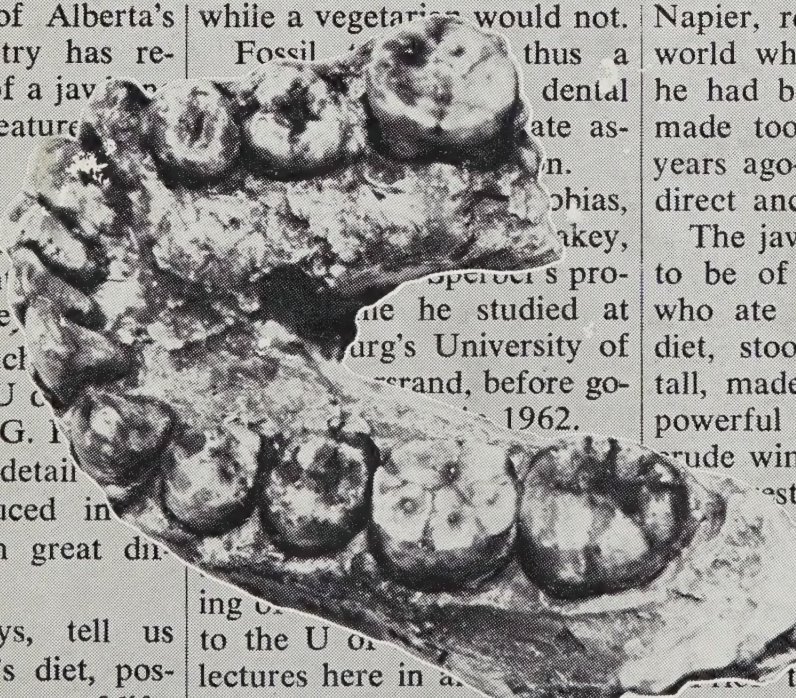
Homo habilis, named by Drs. Leakey, Tobias and J. R.

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to the Oral Surgeon

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References: 1. Hiatt, W. Local anesthesia; history; potential toxicity; clinical investigation of mepivacaine. Dent. Clin. North America p. 243 July 1961. 2. Ross, N.M. and Dobbs, E.C. Mepivacaine HCl (Carbocaine). J. Oral Surg. Anes. & Hosp. D. Serv. 21:215, May 1963.

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The human saga

The history of man's evolution on this planet covers approximately 15 million years of time. Five thousand years of intermittent records trace man's known history, then fade into the darkness of the Stone Age hunter's world. For the rest of human evolution, we have a mere handful of broken teeth, a few battered skulls, the carvings and paintings of dead hunters, and some rude tools to tell the story of how man crawled out of the darkness and how his body was transformed in the course of that long and tortuous journey. We do know that our highly touted western civilization actually had its remote beginnings in Africa. This western civilization was an outgrowth of the first farming way of life in the Middle East and eastern Europe, which in turn developed out of the hunting and gathering way of life of the Old Stone Age precursors in the same regions. The Stone Age itself stretches back two million years where we see its earliest and crudest form expressed in eastern and southern Africa. Man's physical origins, as evidenced by fossil discoveries, are traceable to the same place.

The science which has revealed this story indicates that man and the anthropoid apes stem from a common primate ancestor who evolved about 30 million years ago. Some of the descendants of this creature learned to walk erect on the ground and founded the line of hominids which led to man.

What sets evolving man apart is the gradual expansion of his choice-making organ — the brain, especially the cerebral cortex, and the consequent development of culture. The earliest tangible evidence for creative talent dates back nearly two million years to the extinct Australopithecines. These ape-like creatures had upright bodies and a brain capacity range resembling that of gorillas. They used pebbles to kill and skin small animals. Though their skeletal remains have nearly all come from Africa, the distribution of their rudimentary tools suggests that Australopithecines were also prevalent in Europe, India, southeast Asia and Indonesia.

We know that proto-human apes in various forms survived over an enormous stretch of time; yet all the while evolution was on the move. Important changes of a more subtle sort were taking place resulting in new physical types with relatively larger brains and smaller teeth. Most of these types probably died out, but some may have survived for a time. One of these could have been the remarkable *Homo habilis* described elsewhere in this issue of the Journal. Whether this creature is indeed a distinct species of the genus *Homo* is not entirely clear. Nevertheless, its 1,750,000 year old remains may quite possibly prove to be the earliest human bones ever recovered from the earth.

Another creature that forged ahead in the struggle for survival gave rise to the Pithecanthropines which began to appear about 500,000 years ago. Their fossil remains have been uncovered in Java (Java man), China (Peking man), Germany (Heidelberg man), Israel and Africa. Pithecanthropines differed from Australopithecines in two important ways: they were taller and their brain was about twice as large. Even more important than the increase itself is the fact that it came about in a relatively short time — perhaps within 200,000 years, which is extremely fast for such a marked evolutionary change. Pithecanthropines were also more advanced in other ways: not only did they use crude tools; they could preserve and use fire. They seemingly flourished for two or three hundred thousand years and then declined, not being sufficiently versatile to overcome environmental difficulties.

The earliest representatives of *Homo sapiens* — Steinheim man and Swanscombe man — were already essentially developed while the Pithecanthropines were still battling for existence. Though Steinheim remains date back 250,000 years ago, the brain capacity of these creatures compares favourably with that of modern man. Steinheim and Swanscombe man herald the emergence of the Neanderthal stage which coincides with the beginning of the last ice age, about 100,000 years ago. By this time men were changing not only because of their inherited chemistry but also because of what they learned and what they wanted. The human brain, originally a result of random forces, began to be used to invent and to fulfil purposes and desires. In turn, it was being shaped by those purposes and desires. The success of this cultural adaptive process by the time of Neanderthal man is evident in the great number of his tools which survive. It is also evident from his adaptation of clothing and shelter which facilitated his survival during the last glaciation. There is abundant archaeological evidence that the entire inhabited portion of the Old World was peopled by groups at this stage of development until Neanderthal man disappeared about 40,000 years ago.

The first datable appearance of relatively modern man is symbolized by Cro-Magnon man who lived from 30,000 to 10,000 years ago. A talented artist, his magnificent paintings of late ice age animals have survived in more than a hundred caves in France, Spain and Italy. Though he resembled us in many ways, Cro-Magnon man retained an important ancestral trait — edge-to-edge occlusion. The development of overbite is relatively recent, occurring well after the introduction of metal tools in the Mediterranean basin, and not until considerably later in western Europe, where the edge-to-edge bite survived in England until after the Norman conquest.

Succeeding Middle Stone Age and New Stone Age eras were marked by tremendous improvements in food gathering and hunting, the discovery of agriculture and the domestication of farm animals. These achievements paved the way for the rapid expansion of human population which opened the door to the civilizations of man's subsequent recorded history.

The story of human evolution traces the saga of man's escape from nature's trap of too narrow specialization. The only discernible specialization which man has ever developed is culture. As man's primary adaptive mechanism, culture has done far more to prevent than cause his extinction — thus far. But man is paradoxically the supreme generalized animal by reason of a supremely specialized brain. "It is," as anthropologist Loren Eiseley remarks, "his cities that [now] lie vulnerable to extinction under the silent winging of the satellites."

Cours d'appoint

Le perfectionnement et les cours d'appoint sont à la mode dans la province de Québec. Les sociétés dentaires déjà actives dans ce domaine ont redoublé leurs efforts. Des groupes d'étude fonctionnent activement, les facultés dentaires offrent plusieurs cours à l'intention de l'omnipraticien et le Collège des chirurgiens-dentistes, par l'intermédiaire d'un comité spécial, fait aussi sa large part.

Il faut se réjouir de ces initiatives heureuses, mais il importe de réaliser qu'il ne suffit malheureusement pas de quelques cours pour se remettre à date. C'est un effort personnel soutenu et ininterrompu qui est nécessaire pour compléter les connaissances que nous avons acquises avant d'être admis à la profession, il y a 10, 15 ou 20 ans.

Il importe de se faire une idée d'ensemble de ce qu'est devenue la dentisterie moderne et de compléter les connaissances générales que l'on a de son patient. Cela ne peut se faire sans un retour sérieux vers les sciences fondamentales que l'on avait malheureusement l'habitude de considérer comme trop distantes de l'exercice quotidien. L'évolution de la pratique dentaire moderne nous a montré à quel point ces connaissances de base s'intègrent intimement à notre travail de tous les jours et sont indispensables à notre réussite et à la compréhension du problème véritable que présente notre malade.

Il faut aussi se faire une idée d'ensemble des possibilités des méthodes modernes de traitement. Même s'il compte faire largement appel aux services des spécialistes pour traiter ses propres patients, l'omnipraticien se doit de connaître au moins d'une façon générale ce que pourra accomplir son confrère spécialiste. Sans cela, il risquerait de se trouver dans une position telle qu'il lui serait difficile de faire face à ses responsabilités et de diriger son patient de façon adéquate, évitant que celui-ci aille de spécialiste en spécialiste sans jamais être traité de façon totale.

Enfin, l'omnipraticien se doit de porter à un très haut point de perfection ses connaissances, ses capacités et sa dextérité au moins dans certains domaines qui lui conviennent particulièrement, faute de quoi il se trouvera cantonné dans une routine banale qui n'a rien de commun avec la pratique dentaire moderne.

D'autre part, il ne suffit pas de remettre à date ses connaissances professionnelles, grâce à des cours d'appoint et des séances d'étude: il faut encore que le dentiste mette en pratique cette nouvelle conception de sa profession. Ce n'est pas là tâche facile. Peut-être lui faudra-t-il renouveler son matériel et son appareillage. Peut-être devra-t-il augmenter ou modifier le personnel qu'il emploie à son bureau. Mais de toute façon, il lui faudra sûrement modifier les méthodes qu'il emploie dans le traitement de ses patients s'il veut que ses connaissances nouvellement acquises portent fruit. Il faut une bonne dose de courage pour reconnaître et traiter aujourd'hui une périodontite que l'on avait ignorée il y un an, ou corriger l'occlusion que l'on avait soi-même faussée avec une restauration imparfaite; il faut une bonne dose de sang froid pour entreprendre seul une opération d'un type nouveau. C'est cependant le prix qu'il faut payer pour s'épanouir totalement dans une profession moderne et servir pleinement le public tout en y trouvant sa large part de profit.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.

'Heritage' Issue

To the Editor:

The Governor General has asked me to thank you for so kindly sending to him a copy of the special issue of the *Journal of the Canadian Dental Association* commemorating the hundredth anniversary of Confederation. His Excellency congratulates you on this fine bilingual publication.

Esmond Butler,
Secretary to the Governor General,
Government House, Ottawa.

To the Editor:

I would like to compliment you on the November issue of the *Journal* which I think is outstanding. I am not one for many words but I was much impressed. My only thought has been that there is no identification of the authorship. This may have been planned but I think it was your own modesty, and I think we deserve to know who created this landmark.

W. G. Campbell, DDS,
308 Kennedy St., Winnipeg, Man.

To the Editor:

Just a note to extend my hearty congratulations on *Heritage 1867/1967* which I read with a great deal of interest. It is a beautifully produced issue and an excellent memento of the first hundred years. Please give my compliments to all who had a role in this outstanding issue.

Harold Hillenbrand, DDS,
Secretary, American Dental Association.

To the Editor:

Congratulations on your 'Heritage' issue in November. I can appreciate the hours of research required to make such an interesting and useful special issue. As a student editor I have read your *Journal* and editorials for the past year and have found them very useful in my personal communications and education. Men like you set the standards of excellence for which we student editors strive.

D. J. Kenny, Editor,
Dental Students' Society,
University of Western Ontario, London, Ont.

To the Editor:

With reference to your article, "Dentists of the Cariboo Bonanza," in the November issue of the *Journal of the Canadian Dental Association*, I do not think you did justice to your colleague, Dr. William Allen Jones, when on page 65 you describe this apparently qualified and efficient dentist as "the coloured gentleman from the West Indies." The colour of his skin had nothing to do with his ability as a dentist or his behaviour as a gentleman. He should be described as a West Indian and not as coloured.

In your capacity as editor, you should refrain from the use of such words because of their unpleasant connotation and because they serve only to degrade and humiliate your fellow man, in this case your professional colleague. May I in reference to the above quote from the editor of a Catholic magazine as he gives his opinion on the use of the word 'coloured': "The words 'coloured' and 'nigger' are, of course, intolerable."

I. F. Goodin, DDS,
2286 Carling Ave., Ottawa, Ont.

Dr. Goodin imputes discrimination where none is intended and none exists. Jones was trained in England where a doctorate is not awarded on termination of undergraduate dental studies — hence the omission of the titular 'Dr.' The *Journal* correctly identifies him as a coloured gentleman, that is "having a skin other than white; of or belonging to any). This designation is factual and the the Negro race" (Shorter Oxford Dictionary attaches no derogatory connotation to the word 'coloured.' (Ed.)

R. D. Haryett, DDS, MScD and M. Sandilands,† MA, Edmonton,
and P. O. Davidson,‡ PhD, Calgary, Alberta*

Relative effectiveness of various methods of arresting thumbsucking

The authors evaluated the dental and psychological effects of five methods of treating the thumbsucking habit in children. Treatment methods included psychological support without appliance therapy, the palatal arch used alone, the palatal arch used with psychological support, the palatal crib with projecting spurs used alone, and the palatal crib used with psychological support. Combinations of psychological support and palatal arch therapy were no more effective than total lack of treatment. The palatal crib with spurs worn for a period of one year effectively stopped the habit. Psychological treatment did not appreciably influence the arrestment of thumbsucking.

Les auteurs ont étudié les effets dentaires et psychologiques de cinq méthodes pour traiter chez les enfants l'habitude de sucer le pouce. Les méthodes comprenaient: un soutien psychologique sans l'usage d'appareils, l'emploi d'un arc palatin seul, l'arc palatin avec soutien psychologique, l'emploi de l'arc palatin avec éperons ou avec grillage, combiné au soutien psychologique. Les combinaisons de soutien psychologique avec l'arc palatin ne furent pas plus efficaces que l'absence de tout traitement. L'arc palatin avec éperons, porté pendant un an, enraya l'habitude. Le traitement psychologique ne contribua pas de façon notable à arrêter l'habitude de sucer le pouce.

Several authors have reported the incidence of thumb- and fingersucking among large groups of children.¹⁻⁶ Traisman and Traisman⁷ recorded the highest frequency of thumbsucking: 45.6 per cent of 2,650 children displayed the habit. Such habits are frequently ac-

companied by malocclusion.^{2,6-11} Most parents are naturally worried by the probable dental and psychological consequences of pernicious oral habits. Yet many parents and dentists are perplexed by the conflicting theories which surround this problem. Dentists are aware

of the damage to the oral structures which results from persistent thumbsucking; but unfortunately many hesitate to arrest the habit. The theories of Freud¹² and Pearson¹³ have encouraged this reluctance to interfere with a physiological addiction. Freud separated the need to suck from the taking of nourishment when he said, "thumbsucking consists of a rhythmic contraction of sucking contact with the mouth wherein the purpose of taking nourishment is excluded." He further stated that the child's lips behave like an erogenous zone which is gratified when the child eats. Eventually, the desire for repetition of the sexual gratification is separated from the desire to eat.¹² Pearson¹³ says that "thumb-sucking is for oral gratification of sex in young children." If stopped too abruptly, neurotic symptoms such as stuttering, masturbation, and anti-social trends may develop. Similarly, Kaplan¹⁴ suggests that thumbsucking may be a symptom of emotional disturbance—"a disturbance of inter-personal relations." Massler¹⁵ believes that vigorous thumbsucking after the third year of life reflects some disturbance in emotional maturity. The *British Medical Journal*¹⁶ asserts that thumbsucking is indicative of anxiety; it is useless to try to stop the habit forcefully and may even be positively harmful to future emotional development of the child. Lang¹⁷ likewise notes that a child can only be freed of the thumbsucking habit by supplying security and love, not by attacking the symptom. In view of these warnings many dentists are quite reluctant to treat a thumbsucking habit by direct intervention. In their eyes, the problem seems to call for psychiatric rather than dental treatment. Unfortunately, most published observations on the psychological effects of thumbsucking reflect personal viewpoints that lack experimental verification. These pronouncements are based on psycho-analytic hypotheses that have never been validated.

At the University of Alberta a study has been in progress for seven years to evaluate the dental and psychological effects of various methods of treating the thumbsucking habit. This paper reports the relative effectiveness of five methods of treating thumbsucking.

MATERIALS AND METHOD

The study groups consisted of 66 Edmonton children over the age of four. The subjects were persistent thumb- or fingersuckers. All of them displayed the characteristic changes in occlusion known to result from these habits.¹⁸⁻²¹ The most significant aberration in the occlusion was a protrusion of the maxillary incisors caused by pressure from the thumb. In addition, the crowbar effect of the thumb and the perverted contraction pattern of the peri-oral musculature tended to flatten the mandibular incisor segment. Shallow and open bite relationships of the anterior teeth developed as a result. Hyperfunction of the cheek muscles during sucking often produced a contraction of the maxillary arch which then became more tapered. In some instances, the maxillary contraction became the source of tooth interferences and associated compensatory jaw dysfunction. The children were referred to us by private dentists. They are typical of a type of interceptive orthodontic problem commonly encountered in private practice.

An extensive dental history, orientated study casts, a full set of intra-oral radiographs and lateral and antero-posterior cephalographs were obtained from all the children.

The children were then divided at random into six groups (11 per group). Group 1 received no treatment of any kind. Group 2 received only psychological treatment. Children of group 3 received a palatal arch but no other treatment. Children of group 4 received a palatal arch. These children were also given psychological support. Children of group 5 received only a palatal crib. Children of group 6 received a dental crib. These children were also given psychological support. The children were divided into two age groups; those of pre-school age (4-6 years) and those over six years of age. (Table 1).

As can be seen, there were three levels of dental treatment — no appliance (groups 1 and 2), palatal arch (groups 3 and 4), and palatal crib (groups 5 and 6) —and two levels of psychological treatment—those without psychological treatment (groups 1, 3, and 5), and those with

TABLE 1 Distribution of 66 Edmonton children with persistent thumbsucking.

Age	No dental appliance		Palatal arch		Palatal crib		Total subjects
	No treatment	Psychological support only	Arch only	Arch plus psychological support	Crib only	Crib plus psychological support	
4-6 yrs.	6	6	6	6	6	6	36
6 yrs. and over	5	5	5	5	5	5	30
Total subjects	11	11	11	11	11	11	66

psychological treatment (groups 2, 4, and 6). This type of factorial design permits an evaluation of the various types of treatment.

Group 1, 3, and 5 children (who received no psychological treatment) were first given a complete dental examination and routine psychological tests. Group 1 children (who received no treatment whatever) were recalled one year later for reassessment. Group 3 and 5 children subsequently received their respective dental treatments. They were also instructed about the hygienic care of their appliances. Group 2, 4, and 6 children were handled like group 1, 3, and 5 children but received additional psychological support from the dentist. This treatment consisted of two parts. The first part, directed at the child, tried to gain his cooperation in breaking the thumbsucking habit. By means of a mirror, the child was shown the deformation in his own mouth caused by sucking his thumb. He was also shown plaster casts and colour photographs of malocclusion, tongue thrust, and abnormality of the lip and other oral structures caused by thumbsucking. In short, we tried to motivate the child by creating a desire to break his habit. The second part of the psychological treatment was directed at the parents, usually the mother. The effects of thumbsucking were explained to the mother and she was asked to help with the treatment. One of the basic laws of learning psychology is that acts which are rewarded tend to recur more often than acts which are not rewarded. The mother was therefore asked to reward the child for not sucking his thumb.^{22,23} She was instructed to do this by giving the child her full attention during periods

when he was likely to suck his thumb (as at bedtime) but only if he refrained from the habit. At all other times she was asked to ignore thumbsucking behaviour so that it would not be rewarded.

Group 1 tested the effect of getting no treatment and no advice. Group 2 tested the effect of receiving advice from the dentist. Group 3 tested the effect of wearing a palatal arch which rested passively against the soft tissues. Barber²⁴ claims that an appliance serves as a reminder to the child. If this were true one would expect a palatal arch to act as a reminder and have some effect in breaking the habit. The palatal arch was not intended to reduce contact between thumb and palate and thereby inhibit sucking pleasure. Group 4 tested the effect of an appliance plus psychological support. Group 5 tested the effect of a crib alone, and group 6 tested the effect of a crib plus psychological support. Group 6 exemplifies a type of treatment which can be performed by any dentist.

Appliances. — Stainless steel bands for the palatal arch (Figures 1 and 2) or palatal crib (Figures 3 and 4) were placed on maxillary second deciduous molars or first permanent molars. Both appliances were made from .040 stainless steel wire and were similar in design, except that the palatal arch lacked the vertical fence-like portion incorporated in the crib. This vertical element was situated as close to the lingual surface of the maxillary incisors as possible and as deep as uninhibited lateral excursions of the mandible would permit. The vertical bars of the crib projected as spurs for approximately 2 mm. below the lower border of the vertical fence (Figure 4).



FIGURE 1 Occlusal view of palatal arch.

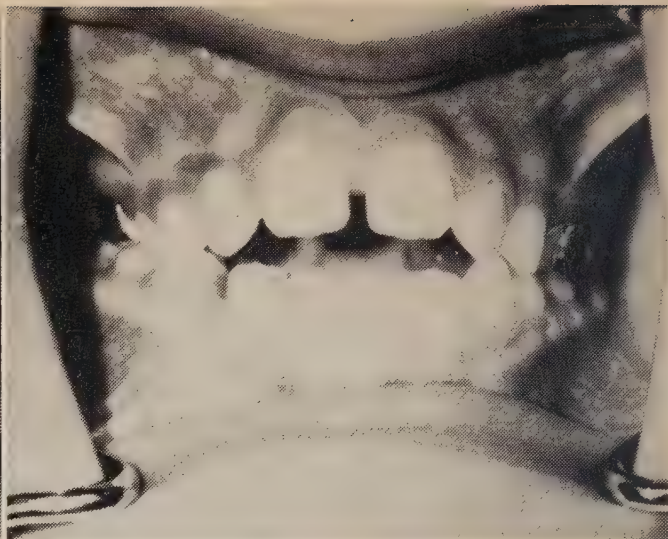


FIGURE 2 Anterior view of occlusion after palatal arch.

Several authors^{18, 20, 25, 26} have advocated cribs for the control of oral habits. The crib used in this study was intended for a twofold purpose: first, to stop the habit; secondly, to restrict tongue thrust. The crib probably stops the habit by breaking the suction. When the thumb ceases to contact the soft tissue, the habit is no longer a source of pleasure. The blunt spurs reinforce the already undesirable aspects of the crib. The vertical fence acts as a barrier that prevents the tongue from gaining forcible access to the gap created by the anterior open bite (Figures 5 and 6). The spurs enhance the effectiveness of the appliance in controlling tongue thrust. They discourage any attempt to slip the tongue under the lower edge of the fence and thrust it forward.

The children who received appliances were observed at regular intervals for a period of one year. This close surveillance was necessary to ensure the pa-

tients' comfort and to verify that the appliances were securely fixed in the mouth. All appliances were removed at the end of the year.

RESULTS

All patients from groups 1 to 6 were recalled after one year. One patient had left the province. This left 65 subjects (Table 2).

A comparison of groups 1-4 (Table 3) shows no significant difference between the children who received no treatment whatever (group 1) and those who were given some type of treatment (psychological support—group 2; palatal arch—group 3; palatal arch plus psychological support—group 4).

After one year of treatment the habit was completely arrested in the subjects of groups 5 (crib) and 6 (crib plus psy-

FIGURE 3 Occlusal view of palatal crib.



FIGURE 4 Anterior occlusal view of palatal crib showing the vertical fence and projections.

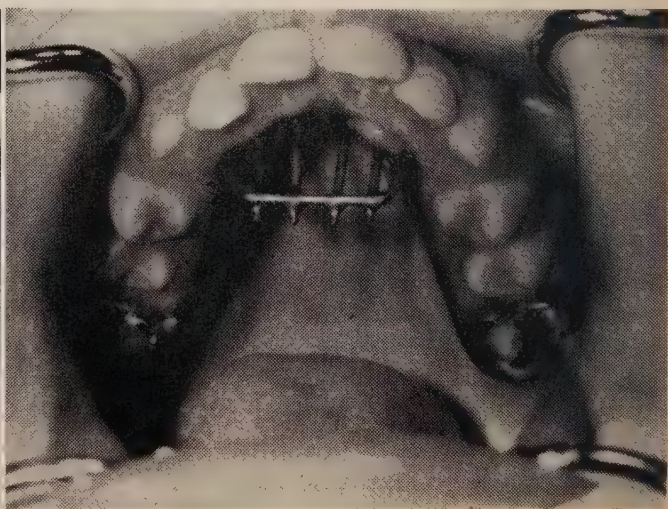


TABLE 2 Effects of treatment methods in 65 subjects after one year.

	No dental appliance				Palatal arch				Palatal crib †				Total subjects
	Group 1* No treatment		Group 2 Psychological support only		Group 3 Arch only		Group 4 Arch plus psychological support		Group 5 Crib only		Group 6 Crib plus psychological support		
	4-5 yrs.	6 yrs. & over	4-5 yrs.	6 yrs. & over	4-5 yrs.	6 yrs. & over	4-5 yrs.	6 yrs. & over	4-5 yrs.	6 yrs. & over	4-5 yrs.	6 yrs. & over	
Habit active	5	4	6	4	6	4	5	3	0	0	0	0	37
Habit stopped	0	1	0	1	0	1	1	2	6	5	6	5	28
Total subjects	5	5	6	5	6	5	6	5	6	5	6	5	65

*One subject from this group moved away and could not be recalled.

†Crib with spurs is superior to all other treatments combined (groups 1-4 compared to groups 5 and 6). $\chi^2 = 42.03$; $df = 1$; $p < 0.001$.

TABLE 3 Comparison of group 1 (no treatment) with treatment groups 2-4.

	Groups		
	1	2, 3, 4	Total
Habit active	9	28	37
Habit stopped	1	5	6
Total	10	33	43

chological support). It recurred after a further year in one subject of each of these two groups (Table 4).

DISCUSSION

Treatment with the palatal crib (group 5) and with the palatal crib plus psychological support (group 6) was very effective in stopping the habit. The crib was equally effective with or without psychological support. Psychological support, as applied in this study, contributed nothing to the arrestment of the habit. This is verified by comparing arrestment results in groups 1-4: group 1 — one stopped; group 2 — one stopped; group 3 — one stopped; group 4—three stopped.

When groups 5 and 6 were recalled one year after the cribs were removed, the habit had recurred in less than 10 per cent. Once the thumbsucking is arrested, the frequency of recurrence is minimal and does not appear to be a major problem.

SUMMARY

1. The palatal crib with spurs was superior ($p < 0.001$) to all other treatments used in this study for arresting persistent thumb- or fingersucking.

2. Combinations of psychological support and palatal arch therapy (groups 2-4) were no more productive than lack of treatment.

3. The palatal crib with spurs worn for a period of one year is an effective way of stopping thumbsucking. Psychological treatment, as used in this study, did not appreciably influence the arrestment of a sucking habit.

*Professor of orthodontics, Faculty of Dentistry, University of Alberta, Edmonton.

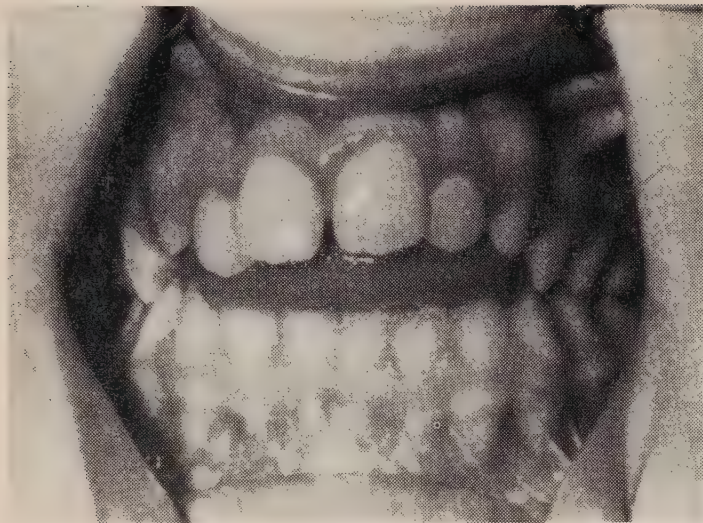


FIGURE 5 Anterior view of occlusion showing tongue thrust during swallowing.

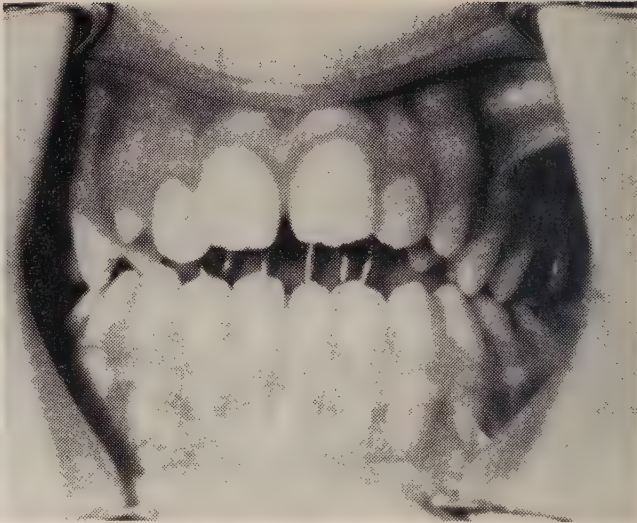


FIGURE 6 Anterior view of crib after insertion. Note how the appliance is designed to restrain anterior tongue thrust.

TABLE 4 Recurrence of thumbsucking in children treated with a palatal crib one year after treatment was terminated.

Treatment group	Number in group	Habit arrested one year later-1965	Habit recurred follow-up-1966
5 Crib only	11	11	1
6 Crib plus psychological support	11	11	1
Total	22	22	2

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Failures in Class II amalgam restorations

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The authors' examination of 560 extracted teeth has re-emphasized the classical requirements for successful Class II amalgam restorations. Cavity preparation must conform to Black's principles. The cavity outline must be extended sufficiently to prevent the recurrence of decay. A contoured, wedged matrix is essential to prevent the extrusion of amalgam at the cervical margin and to reproduce the contour of the tooth. The amalgam must be adequately condensed to eliminate excess mercury and forestall the development of cracks and pits in the finished restoration. Deep cavities must be lined with a suitable capping material. An insulating base is also desirable. The finished restoration must be polished to minimize tarnish and corrosion as well as soft tissue irritation attributable to food retention on a rough metallic surface.

L'examen de 560 dents extraites a réaffirmé les exigences classiques pour réussir les restaurations par amalgames de la classe II. La préparation de la cavité doit se faire conformément aux principes de Black. Le contour de la cavité doit être suffisamment étendu pour prévenir une récurrence de la carie. L'usage d'une matrice moulée est essentielle pour prévenir l'expulsion de l'amalgame à la périphérie cervicale et pour reproduire la forme de la dent. L'amalgame doit être suffisamment condensé pour éliminer un excès de mercure et empêcher le développement de fissures et de cavernes, une fois la restauration terminée. Les cavités profondes doivent être doublées avec un matériau de revêtement convenable. Une base isolante est désirable également. La restauration, une fois terminée, doit être polie, ce qui minimise le ternissement et la corrosion, ainsi que l'irritation des tissus, par suite de la rétention des aliments sur une surface métallique rugueuse.



FIGURE 1 Extracted tooth with acceptable amalgam restoration.

The amalgam restoration is considered to be the bread and butter of restorative dentistry. Its introduction to the United States by the Crowcour brothers¹ in 1833 created a controversy within the profession, one group contending that amalgam is a poor filling material, the other adopting the new material. This introduced the 'Amalgam War' which became a turning point in the development of dentistry as a profession. G. V. Black was the first scientist to study the physical properties of amalgam and to investigate cavity preparation as a means of improving the restoration.

Brekhus and Armstrong,² Boucher,³ and Phillips⁴ consider amalgam the most frequently used material in restorative dentistry. Consequently, failures in amalgam restorations are an important consideration for every dentist. Easy handling

and the ability to mask many mistakes may have contributed to amalgam's popularity in the profession. Tingley⁵ has claimed that more amalgam restorations fail from poor workmanship than from the use of poor alloys. Healey and Phillips⁶ demonstrated that improper cavity preparation causes approximately 56 per cent of all amalgam failures, while faulty manipulation of the alloys accounts for about 40 per cent of all failures. Responsibility for amalgam failures lies mainly in the hands of the dentist who controls both cavity preparation and manipulation of the filling material.

We recently examined 560 extracted teeth with proximal amalgam restorations to determine the principal reasons for failure of the fillings. Our observations were limited to caries around the margins, contours of restorations, extension of

FIGURE 2 Polished proximal amalgam restoration with adequate margins and proper contour.





FIGURE 3 Inadequate proximal extension in buccal, lingual and gingival areas.

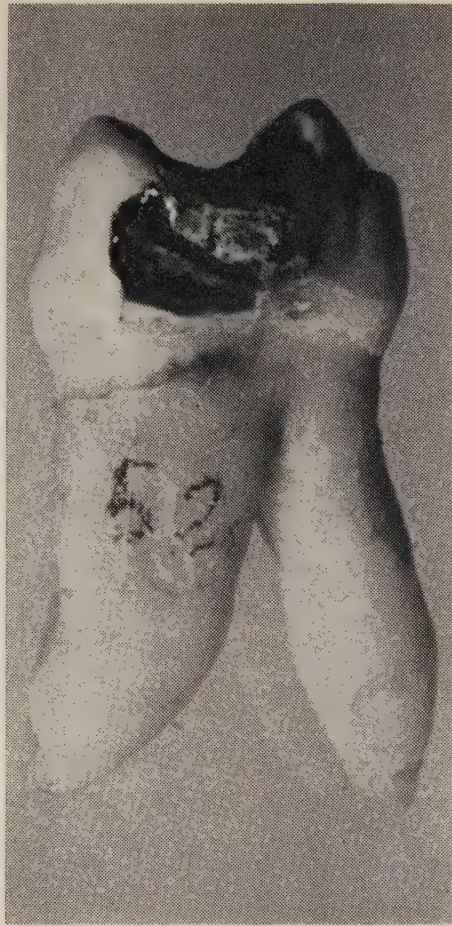


FIGURE 4 Maxillary first molar with recurrent caries around amalgam restoration in buccal and gingival areas.



FIGURE 5 Lower first molar with recurrent caries in lingual and gingival areas due to lack of proper extension for prevention.

the proximal cavities, amalgam overhang and shoulders at the gingival margins, pits and cracks in the restorations, tarnish and corrosion, and polishing of the restorations. There were no available records concerning the reasons for extraction. Some teeth were probably extracted for reasons other than amalgam failure. These teeth had clinically acceptable amalgam fillings (Figures 1 and 2).

EXTENSION FOR PREVENTION AND CARIES AROUND MARGINS

The original principles of cavity preparation were formulated by Black in 1895. Bronner⁷ in 1930 described a modified concept for Class II cavity preparation. He recommended that buccal and lingual walls of the proximal cavity converge gingivo-occlusally instead of being nearly parallel as Black had advocated.

Regardless of their axial direction, the proximal walls should be carried to self-cleansing areas buccally and lingually. The gingival margin should be placed below healthy gingival tissue. A restoration which, because of improper extension at the proximal surface, cannot be adequately cleaned by brushing or mastication is doomed to failure.

Figure 3 exemplifies inadequate buccal, lingual and gingival extension. It is quite clear that caries around the restoration in Figure 4 is due to insufficient gingival and buccal extension. Figure 5 illustrates caries in the lingual and gingival areas due to the same reason. Recurrence of caries around proximal restorations was a common finding in this study. Lind⁸ and Harvey⁹ proved in separate clinical studies that recurrent caries led to failure of amalgam restorations. Faithful observance of Black's principle about 'extension for prevention' greatly minimizes recurrent caries around restorations.

MATRICES

A matrix is essential for the restoration of a compound cavity. Several authors have outlined the requirements of a good matrix.^{10,11} It should (1) provide the missing wall or walls of a cavity, (2) be firm and unyielding to the condensation forces (reinforce the matrix with a low fusing modelling compound), (3) produce normal contour and establish proper contact areas, (4) be well adapted to the proximal margins of the cavity, and (5) produce a smooth surface, thereby reducing the necessity of interproximal polishing. Gibb¹² stated that "the type of matrix used is immaterial as long as it is thin, can be properly contoured, properly wedged, and closely adapted to the proximal margins of the cavity." These requirements contribute significantly to a filling that possesses the desired characteristics of form and function and preserves the health and integrity of the gingiva.^{13,14}

Figure 6 illustrates proximal amalgam restorations totally devoid of proper contour. It is doubtful whether any matrix was used for these fillings. We recall

Eames' statement:¹⁵ "Give pause to ponder the fellow who did not find the matrix to his liking. Nor did he use one, for the logical reason that on the one occasion he did, it cut his thumb while condensing amalgams."

Any matrix, even if it is reinforced, must be wedged at the gingival margin to prevent the escape of filling material into the gingival area (Figure 7). A cervical excess of amalgam causes continuous mechanical irritation and gradual destruction of the adjacent periodontic tissues. Bitewing radiographs should be made whenever a proximal amalgam restoration is completed. Such radiographs serve to detect any possible cervical discrepancy.

CONDENSATION

Proper condensation is one of the most important steps in amalgam procedure. The main reasons for condensation are to reduce the residual mercury content and to ensure the access of amalgam to all parts of the preparation. Black¹⁶ stressed the clinical importance of amal-



FIGURE 6 Radiograph of inadequately contoured amalgam restorations. The arrow indicates condensed amalgam in the pulp chamber.



FIGURE 7 Radiographic evidence of extruded amalgam at the gingival margin. Note the gross marginal excess on the left and the sliver of 'gingival flash' on the right.

gam strength and the variables influencing this property. The relationship of the mercury content of the restoration to its physical properties has been studied by numerous investigators.¹⁷⁻²⁰ Amalgam containing 45-55 per cent mercury seems to retain a fairly consistent strength. Beyond this level, however, there is a sharp loss of strength.²¹ An excess of mercury produces many undesirable properties in the amalgam if it is allowed to remain in the mass.¹⁷⁻²⁰ It reduces the compressive strength and increases the flow, retards setting, and increases tarnish and corrosion. Eames²² advocated a low alloy-mercury ratio of 1:1 for mixing, thus eliminating the need for the squeeze cloth. (He also changed the emphasis from condensation to adaptation.) This technique is based on the fact that excess of mercury does not have to be eliminated if it is not originally incorporated in the mix.

The force exerted on the condenser, the diameter of the nib and the angulation of the instrument influence the ultimate success of the restoration.²³ Condensation should start in the most inaccessible parts of the cavity. Force is needed to expel mercury from the mix and to adapt the material to the cavity walls as well as against the matrix. Condensation should begin with small nibs that reach the corners of the preparation. Force should be directed laterally as well as vertically to gain better adaptation.

Poorly condensed amalgam presents cracks and crevices which promote tarnish and corrosion of the restoration in the oral cavity.²⁴ Pitted fillings are often the result of improper and uneven condensation.²⁵ Figure 8 represents a classical picture of improperly condensed amalgam.

PULP PROTECTION

Dentine, being an efficient chemical and thermal barrier, protects the pulp against many types of insult. To assure an optimal natural dentine barrier, the axial-pulpal walls should not be reduced beyond 0.5 mm. from the dentine-enamel junction.²⁶ When less than 0.2 mm. sound dentine remains, pulp protection becomes



FIGURE 8 Cracks and voids in the proximal aspect of an amalgam restoration due to inadequate condensation.

mandatory.²⁷ Deep cavities are of special concern since a microscopic pulp exposure may occur during preparation of the cavity without any immediate clinical evidence of an exposure.²⁸ A deep cavity preparation should always be treated as a possible pulp exposure.

In deep preparations an acceptable capping material such as calcium hydroxide paste²⁹ should be deposited in the deepest part of the cavity with minimal pressure. Calcium hydroxide paste attains its maximum strength of 1,100 psi in seven minutes.³⁰ A thin layer of cavity varnish is then applied over the capping material to minimize the irritating qualities of cement base.³¹ Phillips et al³² claim that zinc phosphate cement has similar insulating qualities to dentine. They recommend that zinc phosphate cement be used, whenever space permits, to reduce dietary thermal transfer. When only a thin layer of dentine remains, condensation may produce an inflammatory reaction in the pulp.³³ The force of condensation causes the elastic dentine to bend and irritate the confined pulp tissues. Figures 10 and 11 illustrate amal-



FIGURE 9 Radiographic evidence of amalgam which has penetrated the pulp chamber.

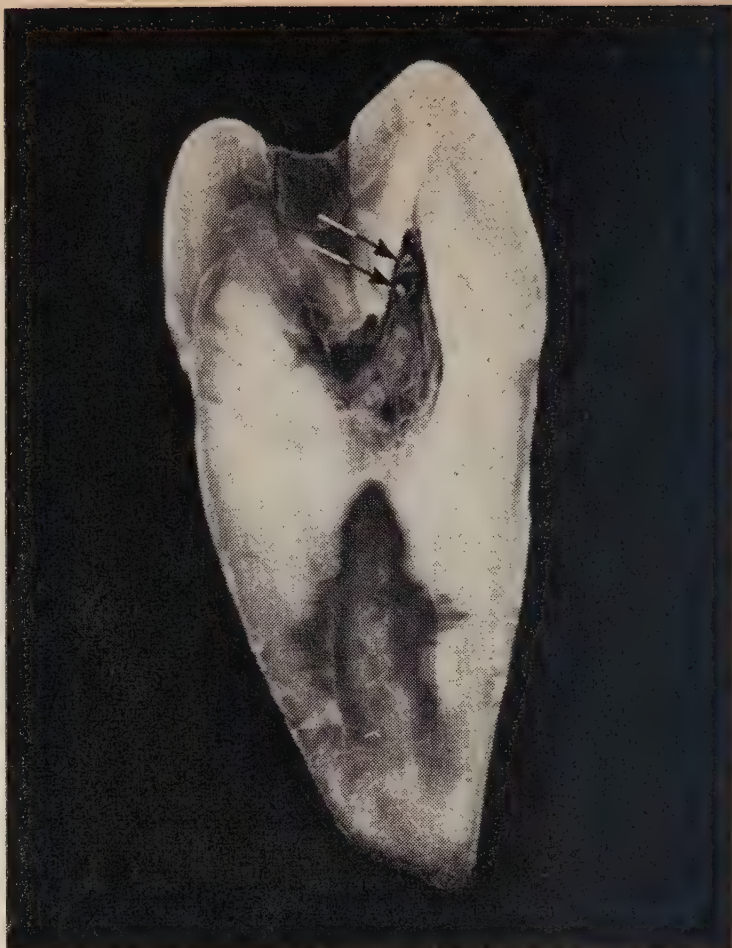


FIGURE 10 A ground section of the same tooth as in Figure 9. The arrows indicate amalgam inside the pulp tissue.

gam in close proximity to and even pushed into the pulp chamber. A rigid base minimizes the effects of amalgam condensation on the pulp.

POLISHING

An amalgam restoration is not finished unless it is polished. The breach of this requirement, more commonly observed with amalgam than any other restoration, contributes to failure of the restoration.

The filling must be kept at an even temperature during polishing. Friction heat endangers the pulp tissue and also draws mercury to the surface of the restoration.³⁴ This results in diminished edge strength and leaves a dull finish when polishing is completed.

Proper polishing enhances the appearance of the filling, improves adaptation of the margins, minimizes tarnish and corrosion, and decreases food retention which is responsible for recurrent caries in the surrounding tooth structure. A polished metal surface, moreover, prevents irritation of the adjacent soft tissue. Polishing should not be attempted for at least 24 hours after insertion. Figure 11

shows an unpolished proximal amalgam restoration with evidence of tarnish and corrosion.

Polishing should be as exacting as any other phase of restorative dentistry. A properly polished amalgam restoration retains its good quality, is admired by colleagues, is appreciated by the patient, and is a source of pleasure to the dentist.

CONCLUSIONS

Class II amalgam restorations, if not meticulously done, can develop many defects which lead to failure and eventual tooth loss. The following requirements are essential for successful amalgam fillings:

1. Cavity preparation should be governed by Black's principles. There is a definite relationship between extension for prevention and recurrent caries.

2. A contoured, wedged matrix should be used to prevent the extrusion of amalgam at the cervical margin and to reproduce the proper contour of the tooth.

3. Condensation of amalgam to eliminate excess mercury helps to prevent the development of pits and cracks in the restoration.

4. A deep cavity should be lined with an acceptable capping material. An insulating base must also be placed under the restoration to maintain the health and integrity of the pulp.

5. A final and essential requirement is that the restoration be polished.

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FIGURE 11 A typical example of tarnish and corrosion in an unpolished restoration.

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Extrapyramidal manifestations during drug therapy with phenothiazine derivatives

Phenothiazines act on the extrapyramidal areas of the central nervous system, affecting the basal ganglia directly. Excessive doses produce Parkinsonian reactions, impairment of the power of voluntary movement (dyskinesia), and disordered tonicity of muscle (dystonia). Cervico-facial and oral manifestations predominate. Similar phenomena occasionally follow the administration of smaller doses, especially in children. These toxic effects may be countered by the prompt administration of certain other antihistaminics such as diphenhydramine.

■

Les phénothiazines agissent sur les centres extrapyramidaux du système nerveux central et affectent directement le ganglion basal. Des doses excessives produisent des réactions parkinsoniennes, une altération du contrôle des mouvements volontaires (dyskinésie) et des troubles de la tonicité des muscles (dystonie). Les manifestations cervico-faciales et buccales sont les plus courantes. Des effets similaires suivent parfois l'administration de doses plus faibles, particulièrement chez les enfants. Ces effets toxiques peuvent être enrayés par l'administration immédiate de certains autres antihistaminiques, tel que la diphenhydramine.

There are at least 17 derivatives of phenothiazine. They range from the comparatively weak mepazine (Pacatal), methoxypromazine (Tentone), promazine (Sparine), promethazine (Phenergan), and thioridazine (Mellaril) to the highly potent chlorpromazine (Thorazine), fluphenazine (Permitil, Prolixin), prochlorperazine (Compazine), perphenazine (Trilafon), and trifluoperazine (Stelazine).¹ These drugs are widely used as antihistaminic hypnotic tranquilizers and for the control of nausea and vomiting.

The bizarre effects of an extrapyramidal reaction to phenothiazines have been described² as "more of a shock to the physician than a threat to the patient."³ This is usually true in reactions involving dyskinetic and dystonic syndromes characterized by spasms or cramps of several muscle groups. Syndromes of the face and neck are most common. These can be subtle and confusing. They vary widely in their manifestation. Pain of the masticatory muscles,⁴ trismus of these muscles associated with abnormal mandibular excursions,⁵ spontaneous dislocation of the mandible,⁶ protrusion of the tongue (with inability to retract it) and paraesthesias within the mouth,⁷ and all the above features including spasm of the neck muscles⁸ (usually unilateral), have been reported.

Parkinsonian reactions characterized by postural abnormalities with varying degrees of rigidity, tremor and salivation are potentially life-threatening if not recognized and if treatment is not promptly instituted. Dystonic and dyskinetic movements, if untreated, have over a period of time proceeded to oculogyric crises,



FIGURE 1 Appearance of a 21 year old patient 10 days following an automobile accident. During the interval he had received six doses of perphenazine, 5 mg. He subsequently complained of 'tightness' of his neck muscles and developed a torticollis to the right.



FIGURE 2 Same patient one minute after the injection of 50 mg. of diphenhydramine intravenously.

opisthotonos and spasmodic stertorous respirations with brief, recurrent episodes of laryngospasm and cyanosis.^{9,10}

The reaction to these drugs may in some cases resemble tetanus, and this disease may be considered as a likely aetiology. Phenothiazine therapy, however, has added another possible cause. In such cases, therefore, a medical history and the ability to recognize and treat the untoward effects of the phenothiazine derivatives are of utmost importance.

Cessation of the drug is, of course, mandatory. Satisfactory results have been achieved with intravenous amobarbital sodium (Amytal) or caffeine sodium benzoate. Intramuscular meperidine (Demerol) 50-100 mg. has also been advocated.⁸ The drug of choice is, perhaps, intravenous diphenhydramine hydrochloride (Benadryl). An almost immediate response is seen following the administration of 25 to 50 mg.¹¹

In the literature, perphenazine (Trilafon) has not often been implicated in this syndrome. The following two cases exhibit both the mild and the more severe forms of the perphenazine-caused extrapyramidal reaction.

CASE REPORT 1

A 21 year old white man was involved in an automobile accident October 15,

1966, at which time he suffered a Lefort I, a right trimalar, and a nasal fracture. He retained consciousness and was able to recall the accident.

The patient was admitted to King County Hospital where, aside from the present illness, the physical examination findings and medical history were within normal limits.

As part of the admission orders, perphenazine, 5 mg. IM, was ordered as needed for nausea and vomiting. He received 5 mg. on October 16, and a similar dose on October 18. On October 21 the patient was taken to the operating room for open reduction and fixation of his fractures under general anaesthesia. He complained of nausea and vomiting post-operatively. Morning and afternoon doses of perphenazine were administered on October 22. He received a single dose on October 24, and again on the morning of October 25. One hour following this last injection the patient complained of pain and 'tightness' of his neck muscles, and a torticollis to the right developed (Figure 1). An extrapyramidal reaction was suspected, and 50 mg. of diphenhydramine were injected intravenously. Within one minute all symptoms disappeared, the patient had no more pain and his neck assumed a normal position (Figure 2). The perphenazine was discontinued, and the patient had no further recurrence of this syndrome.

CASE REPORT 2

A 15 year old white girl with a history of chronic recurrent tonsillitis was admitted to the ear, nose and throat service, King County Hospital, for a routine tonsillectomy. The operation was performed on October 26, 1966. The patient developed nausea and vomiting postoperatively and received 4 mg. of perphenazine IM the evening of October 26. On the morning of October 27, prior to discharge, she had an acute onset of jaw and neck pain. Extreme lateral deviations of the mandible were evident. This condition rapidly progressed to an oculogyric crisis and opisthotonos. Some respiratory difficulty occurred.

A diagnosis of acute extrapyramidal reaction was made, and 50 mg. of diphenhydramine were given intravenously. Within 15 seconds complete relief occurred. The patient was discharged on October 28. At a follow-up appointment on October 31, she complained only of slight pain in the muscles of the neck and jaw. This was considered to be a residual effect secondary to the severe muscle spasms that had occurred as part of the extrapyramidal reaction. This pain gradually subsided and disappeared in a few days.

DISCUSSION

Phenothiazines act on the extrapyramidal areas of the central nervous system, affecting the basal ganglia directly. The idiosyncratic reactions fall into two categories: (1) Parkinsonian-like reactions, and (2) dyskinetic and dystonic manifestations. The extrapyramidal syndrome commonly occurs after doses which are high or have exceeded the recommended level. This, however, is not always the case as can be seen from reports in the literature and our own second case. Children are especially prone to these toxic effects. Another hazard of adminis-

tration of phenothiazine derivatives is the possible development of leucopenia. Patients taking these drugs should be kept under regular observations.

The rationale in treating the extrapyramidal reactions with diphenhydramine hydrochloride lies in the fact that this and certain other antihistaminic drugs are also effective ganglioplegic or anti-Parkinsonian agents.¹² Diphenhydramine is perhaps the drug of choice due to its ready availability and rapid parenteral action.

With the widespread use of phenothiazines and the predominance of cervicofacial and oral manifestations, early recognition and treatment are essential and are quite within the scope of the dental profession.

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Penetration around the margins of restorations:

2. Nature and significance

Penetration of fluid around margins of restorations depends on operator technique; the nature of the environmental fluids; consolidation, adaptation and adhesion of restorative materials; and the pressure differential between the pulp chamber and the external surface. Penetration may proceed in four different ways: (1) by a frank flow with or without lateral spread through dentine, (2) by diffusion through channels between the restoration and the enamel, (3) by permeation of the enamel only, or (4) by chemical affinity between the tooth and penetrant. The more recent composite restorative materials which wet enamel and dentine present the possibility of chemical adaptation to cavity walls. The leakage pattern of such materials will depend on the nature of the surrounding enamel and penetrant rather than on operator variability.

L'infiltration du liquide à la périphérie des restaurations dépend de la technique de l'opérateur, de la nature des liquides environnants, du colmatage de l'adaptation et de l'adhésion des matériaux de restauration et de la différence de pression entre la chambre pulpaire et la surface externe. La pénétration peut se faire de quatre façons différentes: (1) par écoulement à travers la dentine, avec ou sans infiltration latérale, (2) par diffusion au moyen de canaux entre la restauration et l'émail, (3) par l'imprégnation de l'émail seulement ou (4) par affinité chimique entre la dent et le liquide. Les matériaux de restauration les plus récents sont des amalgames qui humidifient l'émail et la dentine et qui offrent la possibilité d'une adaptation chimique aux parois de la cavité. Les fuites de ces matériaux dépendront de la nature de l'émail environnant et du liquide, plutôt que de l'opérateur.

Previous articles^{1,2,3} have questioned the significance of current tests for penetration or leakage around the margins of dental restorations. The degree of leakage determined experimentally in the laboratory was shown to be related closely to the techniques used, with considerable variation arising from the techniques of persons restoring the cavities and the state of the pulp chamber in the test specimen. Few experiments have been conducted *in vivo*.⁴

The observation of some 500 test specimens in the previously reported experiments has led to a hypothesis about the

nature of leakage in restorations. A review of the literature associated with oral physiology helps to establish possible clinical significance of leakage phenomena.

OBSERVATIONS

Cross-sections through teeth and restorations are usually examined in the laboratory experiments associated with marginal leakage. The restorations can be pushed out of their cavities with a sharp instrument after the cross-section is cut.

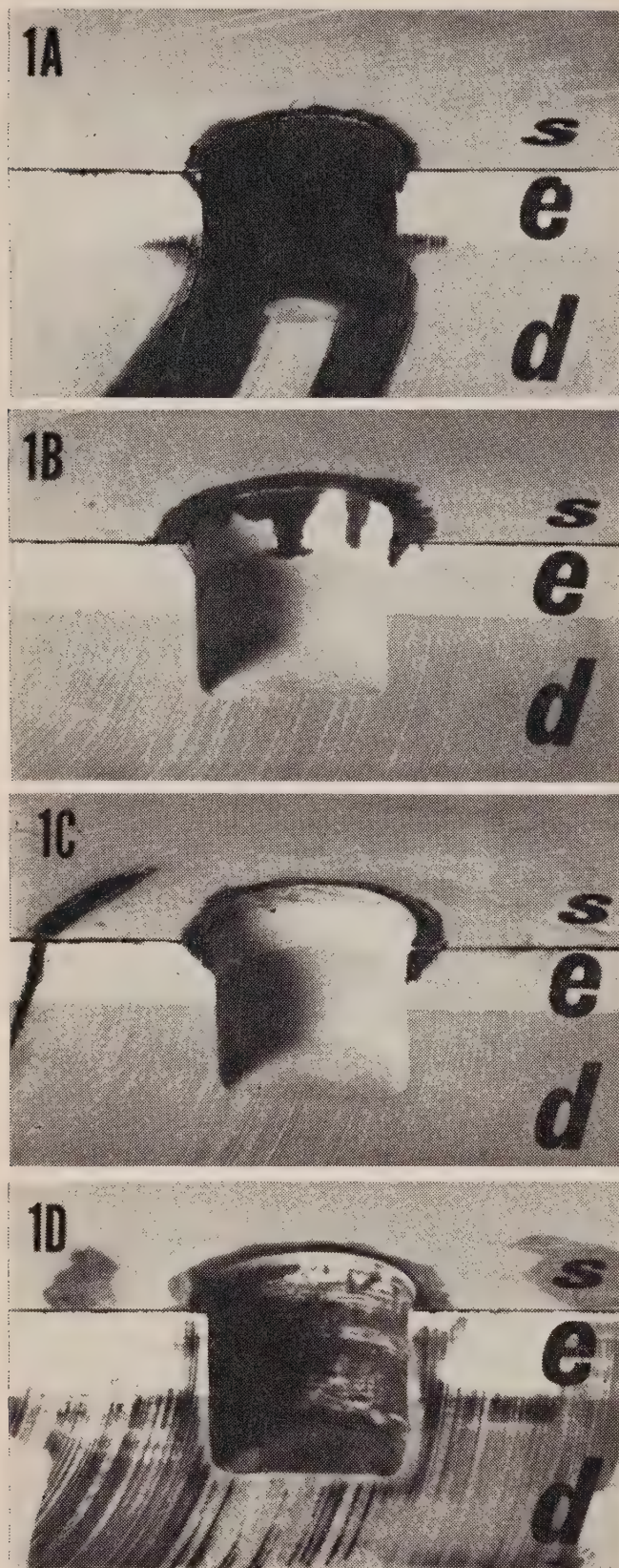


FIGURE 1 In a model of enamel (e) and dentine (d), a cylindrical cavity has been cut from the surface (s). The model illustrates four main patterns of penetration occurring around restorations. In 1A, failure has occurred (no seal). In 1B, marginal leaks are seen at the enamel-restoration interface. These may extend down onto the dentine-restoration interface. In 1C, enamel leaks are shown through the enamel margin or through lamellae or cracks. In 1D, the penetrant has diffused through enamel and dentine, with a high rate of diffusion, down the tooth-restoration interface and along the dentine-enamel junction.

The walls of the cavities can then be observed, particularly if visible tracers, rather than isotopes, are used.

Some 500 specimens of teeth and restorations subjected to various dyes under different conditions³ were examined in this manner. Two hypotheses were advanced:

1. Penetration or leakage around restorations cannot be clearly shown by the inspection of a cross-section or by methods where sections are used. Penetration may occur in areas not traversed in the cross-section. There is an element of chance associated with the direction of the cross-sectioning. If the cross-section does not traverse one of these isolated leaks, existence of a complete seal may be mistakenly assumed.

2. At least four separate penetration patterns around restorations can be recognized in the laboratory experiments. These are illustrated in Figure 1. In Figures 2 and 3, assemblies (previously described³) have been photographed to show the occurrence of the four patterns

FOUR PATTERNS OF MARGINAL LEAKAGE

Failures.—Dye, or similar inert tracer, penetrates the margin and is seen clearly passing through the dentine to the pulp chamber. No single channel is visible. This condition is seen particularly with acrylic restorations when pulpal conditions permit inward flow (Figures 1a, 3a).

Marginal Leaks.—The penetrant can be seen on the cavity wall in discrete channels, and most often at the enamel-restoration interfaces. Marginal leaks are due to (a) lack of adaptation of the restorative material, (b) loss of substance of the restorative material by dissolution, and (c) fracture of either the restorative material or the tooth at the tooth-restoration junction. Amalgam and silicate cement manifest such marginal leaks. These marginal leaks are not regularly disposed about the restoration (Figures 1b, 3b, 3c).

Enamel Leaks.—The tracer or penetrant is seen within the enamel at the margin. These leaks are possibly due to lamellae

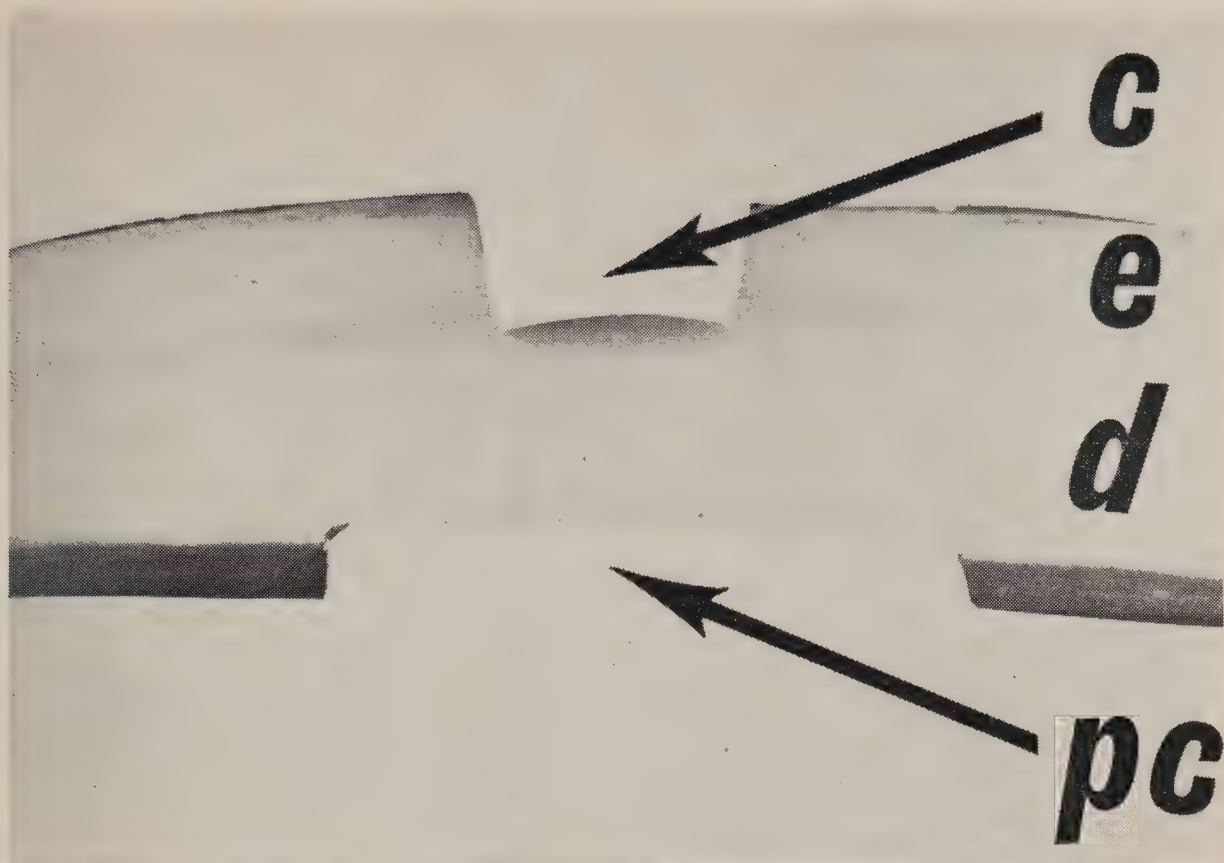


FIGURE 2 Cross-section through a penetration assembly. A section of the labial surface (enamel, e; dentine, d) of a bovine incisor is imbedded in a slab of adhesive polymer (not shown) so that only a portion of labial enamel is exposed. A cavity (c) is cut on the labial face and filled with acrylic resin. A pseudo-pulp chamber (pc) is cut from below, and various solutions are placed in this chamber before the assembly is immersed in dyes.

or cracks induced by cavity preparation^{5,6} or subsequent stressing of this region (Figures 1c, 3b, 3c, 3d).

Permeation and Diffusion.—The tracer or dye passes throughout dentine and enamel by chemical diffusion. The exact entrance cannot always be determined, and the nature of the penetrant is such that chemical combination with the tooth tissue occurs. The wave front, or appearance of the penetrant, in enamel or dentine is not clearly defined; it has the shape of an exponential curve rather than a square wave. This condition is seen in caries and in some forms of staining. This form of permeation and diffusion is illustrated³ by the use of the dye chromotrope 2R (Figures 1d, 3c).

INFLUENCES ON RESULTS

Cross-sections will show clearly only the categories called 'failures' and 'permeation and diffusion.' Most sections in

the laboratory assessments of leakages are traditionally cut in the sagittal plane of the teeth through gingival restorations. There is no evidence that gingival or occlusal sections are the best place to observe leakage in gingival restorations. In Class I or occlusal restorations, Jorgensen⁷ shows that there are definite, separate, or isolated points of weakness where secondary caries is most likely to commence. Moreover, when cross-sections are cut with diamond or carborundum wheels, steps are created on account of the different hardnesses of restorative materials, enamel and dentine. This is commonly seen at the gingival or occlusal interfaces between restorative material and tooth. These steps accumulate debris during cutting. Some photographs purporting to show leakage reveal instead an accumulation of dye or radioactive debris at such steps.

Even when whole teeth are examined, the results may not be closely related to the materials used. The following factors influence leakage and each may change

the nature of penetration recorded in the laboratory.

Operator.—Obvious differences are seen, not only between operators, but also in the daily work of the same operator.³

Materials.—Consolidation of the materials in the cavities depends upon the operator's skill and the nature of the materials used. Consolidation decreases the number of potential leaking channels. The viscosity of sealing solutions, such as cavity varnish, can be most important.³ Adhesive-like materials or those that wet dental hard tissues may seal or plug the possible entrances for dyes. Wetting action on dentine and enamel may give excellent adaptation to walls, but marginal leaks may occur whenever debris is left on the cavity walls. Such wetting is displayed by silicate cements, acrylic resins and some new composites.

Penetrating Fluid.—The electrical charge and the nature of the solvent determines the pattern of leakage. Negatively charged particles, such as chromotrope 2R, penetrate readily;³ similar results with other materials have been described by Trail and Sausen⁸ and Köhler.⁹

Driving Forces.—The greater the difference in osmotic, gaseous or vapour pressure between the pulp chamber and the external surface, the more readily does leakage occur or the more extensive it may become. This aspect was partly verified by Pickard and Gayford.¹⁰ Similarly, an electrical potential difference^{9,11,12} may drive solutes through seemingly intact dental tissues and restoration-tooth interfaces.

Effect of Cavity Preparation.—Little is known about the nature or effects of the subsurface of cut dentine upon adaptation and leakage of the restorative material. Scott¹³ and Provenza¹⁴ have shown that the floor of the cavity is covered by a mass of matted collagen fibres interspersed with fragmented inorganic crystals. Anderson¹⁵ and Stevenson¹⁶ have shown that penetration of dentine occurs more rapidly when the dentine has been exposed by fracture than when it has been exposed by cutting. Uy¹⁷ demonstrated

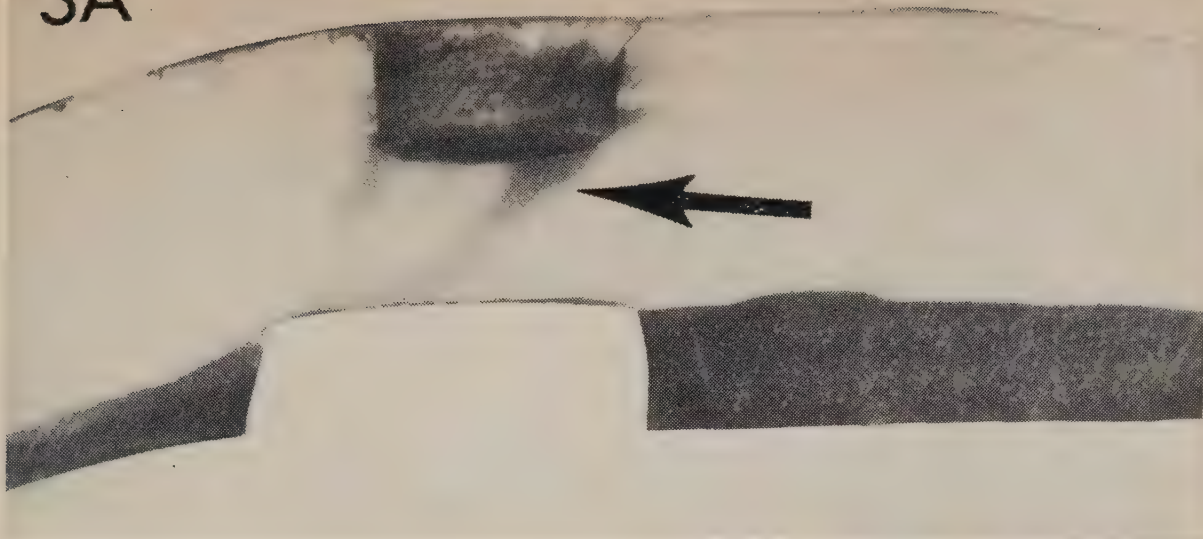
FIGURE 3 (Facing page) Examples of leakage in penetration assemblies around acrylic resin restorations illustrate the four described patterns. The restorations have been pushed out and the walls of the cavity can be seen. In 3A, failure has occurred along the tooth-restoration interface, and dye penetrates down the tubules to the pulp. In 3B, a marginal leak is seen. This would have been rated as a 'complete seal' if the restoration had not been removed. In 3C and 3D, diffusion and marginal leaks are again seen although no penetration of dentine has occurred. In 3C, diffusion of dye from the enamel-dentine junction toward the labial surface can be seen in the original photographs (arrow indicates region). In 3D, the pulpal surface was sealed with an adhesive coating before the assembly was immersed in tracer.

that exposure to air, water, or certain solutions alters the physico-chemical behaviour of dentine surfaces. Thus, the effects of the previously reported³ cutting and filling methods and the effects in the experiments reported by other authors cannot be determined.

Nature of Enamel and Dentine. — The change in permeability in enamel and especially in dentine, with age, is well known. The effects of operative interference on the tooth are not so clear. Does cavity preparation increase or decrease the permeability of the underlying vital dentine? Observation of the caries process and of the permeation of dentine by dyes shows that lateral spread along the enamel-dentine junction occurs. Thus, dentine not implicated in cavity preparation is involved in the penetration of fluids through restoration-tooth junctions. There are two modes of entry to the pulp—one through dentine exposed by cutting, and the other, laterally through the dentine-enamel junction and down uncut tubules to the pulp. Hence, the age and previous experience of the tooth affects penetration, especially through uncut tubules.

Laboratory experiments in marginal penetration of leakage around restorations may demonstrate a potential, but not a clinical reality. The penetration test, even in the laboratory, is of limited value as presently carried out because many variables are not accounted for. Many results merely re-establish what is clear to all good clinicians—that is, a clean, well-prepared cavity finished with hand instruments, and consolidation of materials

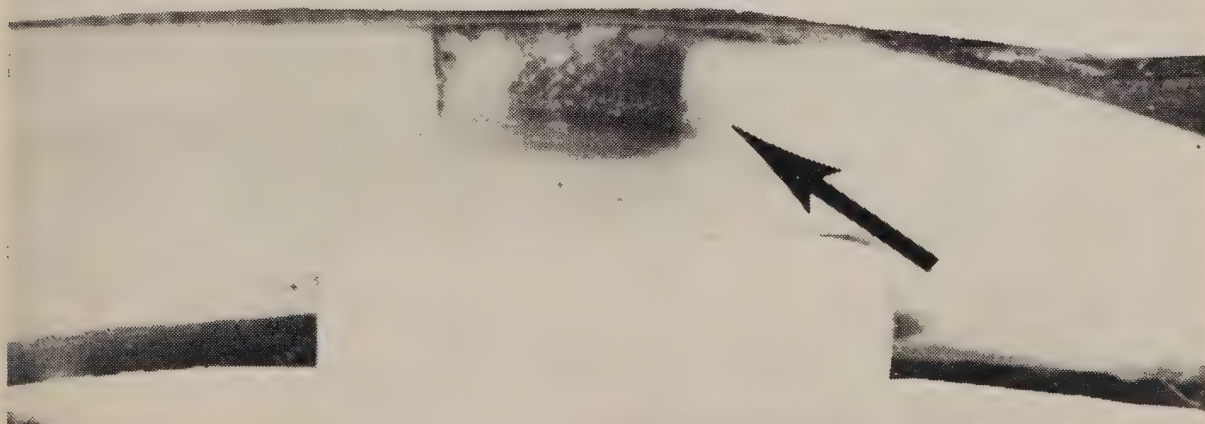
3A



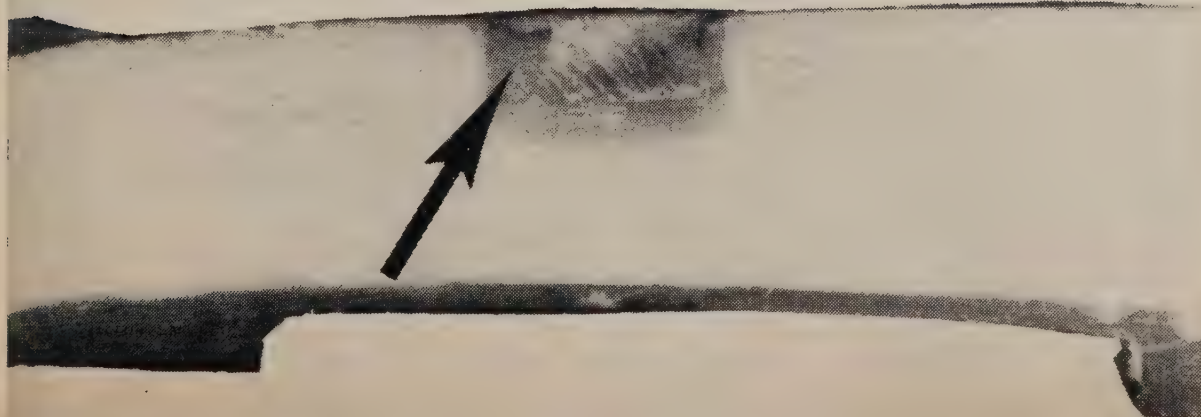
3B



3C



3D



therein are essential to good restorative work. The results do suggest that high-speed handpieces affect the enamel at some distance from the cavity margins. Perhaps stress waves induced by the rotating bur are reflected from the enamel-dentine junction and, by reinforcement, induce fractures in the thin highly elastic shell of enamel.

The disparity between clinical and laboratory observations is partly explained by the modes of entrance of different materials and by variables due to operators. Particularly significant is the observation that a balance can exist between the pulp chamber and the external surface. When the pulp is intact or the osmotic and gaseous pressures are balanced, minimal penetration occurs.³ Such penetration seems limited to the surface or to what are called the enamel leaks—that is, obvious channels in the enamel around the margins of cavities or cracks in the enamel. Close examination of good restorations in the mouth will show staining in cracks at right angles to the margins and running 2 to 3 mm. into the enamel. Moreover, the significance of the penetration tests must be assessed in relation to the environment of the restoration in the tooth and in the mouth.

ORAL CONDITIONS

Enamel and Enamel Pellicle. — The acquired pellicle, described in 1924 by Pickerill,¹⁸ then later by many others,¹⁹⁻²⁶ must play a significant role in preventing or controlling^{26,27} the ingress of water-borne substances into enamel and around the margins of restorations. Does the acquired pellicle at the restoration-tooth margin have the same effect as the pellicle on enamel? Bergman²⁸ showed drops of a fluid appearing on the surface of enamel *in vitro* about enamel lamellae. Does the protein mass within lamellae and long-standing cracks filter or control the passage of fluids? What about the nature of enamel itself? It is not 'water-tight.' In fact, there seems to be a significant amount of water^{28,29} in enamel in 'holes' about 15 angstrom units wide.^{30,31} The exchange of water and ions^{9,27} over several years could be most

significant in determining the availability of channels for penetration of substances. These considerations will determine the nature and, thus, the behaviour of enamel in the mouth. Restoration-enamel interfaces are likewise involved.

Dentine.—The nature and degree of flow of dentinal lymph suggests that dentine exposed to salivary constituents is equivalent to a 'slow' pulp exposure.^{32,38} Chirnside³⁹ and others⁴⁰⁻⁴³ show ready penetration of dentine by organisms and even enamel by colloidal material. The effects of operative treatment on a vital tooth have been described by changes in the microscopic appearance of various structures, such as the dentinal tubule. Little is known, however, about the normal function of dentine and pulp and the changes in function that occur after a restoration is placed. *In vivo* experiments⁴ have confirmed that transport of materials is markedly influenced by fluid movement in dentine.

The Nature of Teeth: A Hypothesis.—The viable pulp in a tooth may control the internal-external balance in flow and content of various ions, solutes and water, thereby controlling the content of dentine and enamel. Fractures and failures in the hard coating of the tooth are prevented by the maintenance of suitable elasticity and resilience in enamel and dentine. Enamel and dentine could be considered as part of the skin. Exchanges of water and ions could be controlled by the pulp through its reaction to the permeation of various compounds carried to the pulp by the enamel fluid or dental lymph. The barrier is repaired, as Mannerberg shows,^{44,45} when cracks or channels do occur.

The pulp, although at some distance from the surface of the tooth, could change the nature of the pellicle, the enamel and the dentine by altering the internal-external flow balance. Such control could be passive or active.

Dental Restorations. — Controversial results of leakage experiments emphasize the need to consider the environment of restorations *in vivo*. Biological aspects of restorative procedures must therefore take precedence over physical aspects.

For example, the thermal coefficients of expansion of restorative materials and teeth have been used to explain marginal percolation and secondary caries. But dentine and enamel are not monolithic slabs of hydroxyapatite. Traditional dental restorative materials are inserts in the tooth which is a hollow structure made up of two distinct materials. A hole cut into a surface of a tooth may actually get smaller when the temperature is raised. The total expansion of the enamel cap or layer may be greater laterally than across the smallest dimension—its depth. Hence, the sides of cavity in enamel tend to come together when heated. As the dentine expands, it may be restrained by the surrounding enamel cap; but at the cavity site no restraint is present, and the dentine will expand into the cavity so that the depth of the cavity diminishes.⁴⁶

In relating biological research to restorative procedures, the need to treat the 'dentine wound' becomes obvious. Water sprays used during cutting and therapeutic aids intended to decrease the permeability of dentine without affecting the pulp seem essential.

The need^{46,47} for more and better adhesive composites is also evident. The adhesive composite may not necessarily decrease leakage, but a restoration joined to the tooth restores its structural integrity. The effect of mastication upon dental restorations has largely been ignored except in photo-elastic studies of cavity forms. There is a long-held belief⁴⁸ and recent experimental evidence^{49,50} that masticatory forces on teeth influence the penetration of sound enamel by cariogenic processes. Surely, the effects of such forces would be magnified by non-joining inserts with widely differing responses to forces.

In summary, the traditions of Black and Ferrier must serve as firm foundations on which the therapeutic, rather than reparative, aspects of restorative dentistry can be built.

CONCLUSIONS

1. Penetration of fluids around the margins of restorations, as seen in the labora-

tory, is affected by: (a) the operator's cutting and restorative techniques; (b) the fluids (electric charge, molecular size, and kind of solutions) used to demonstrate the leakage; (c) the materials used to seal or fill—particularly the consolidation, adaptation and adhesion of the restorations to the walls—and, thus, the channels available for the penetration of fluids; and (d) the contents of the pulp chamber (as osmotic, gaseous or vapour pressure difference between pulp chamber and external surface increases, so does the amount of penetration; when tubules are sealed in the pulp chamber, penetration by osmosis, capillary or physical forces decreases; the presence of a pulp has similar effects).

2. Four kinds of penetration around the margins of restorations are described. The first is a frank flow with or without lateral spread through dentine, allowing rapid penetration to the pulp chamber. A second form, perhaps related to the first, can only be clearly seen when restorations are removed and the cavity walls exposed. Channels exist between the restoration and the enamel due to the presence of contaminants or failure to consolidate the restorative material. The third kind is a penetration or permeation of enamel only, particularly the outer quarter near the margin of a restoration. This kind of penetration is seemingly related to methods of cavity preparation. The fourth is related to a chemical affinity between tooth and penetrant.

3. The physiological or pathological significance of the potential leakage, demonstrated in laboratory experiments, remains speculative.

4. Clinical and scientific evidence indicates that the penetration processes seen in the laboratory are modified in the oral environment.

5. The new composite materials which wet dentine or enamel will adapt to cavities and consolidate therein as a function of their chemistry rather than a function of the operator and his plugging instruments. The leakage pattern of these materials is related to the nature of surrounding enamel and that of the penetrant.

6. Restorative dentistry, as a form of therapeutics, should be based on the na-

ture and behaviour of the teeth and oral structures in the mouth. Laboratory behaviour of teeth or application of physical and chemical principles may be modified considerably by factors arising from the living nature of the teeth.

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Clinical testing of oral pharmacological agents

This article outlines some basic requirements for the conduct of clinical trials with experimental drugs. Bias is reduced by a double blind technique where neither the clinician nor the patient knows whether the drug being administered is the test compound or an inert control agent. Subjects randomly assigned to experimental and control groups should be alike in all respects except in the application of the experimental agent. Tests of drug combinations should demonstrate that the combination is better than the individual ingredients alone and a placebo. Trials should be designed so as to eliminate extraneous influences. Results that are susceptible to alternative explanation detract from the validity of the trial.

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Cet article souligne quelques-unes des exigences fondamentales pour la conduite des essais cliniques avec des médicaments expérimentaux. Le rôle que pourraient jouer les idées préconçues est réduit par une double technique de dissimulation avec laquelle ni le clinicien ni le patient ne savent, lorsque la drogue est administrée, s'il s'agit de la composition à l'étude ou d'un agent de contrôle inerte. Les sujets sont assignés au hasard à des groupes d'expérimentation et de contrôle qui devront être semblables à tous les points de vue, sauf en ce qui concerne l'administration de l'agent expérimental. Les tests de combinaisons de drogues devront démontrer que la combinaison est préférable aux seuls ingrédients et à un placebo. Les essais devront être conçus de façon à empêcher l'action d'influences étrangères. Les résultats, qui peuvent donner lieu à une interprétation différente, enlèvent à l'essai de sa validité.

Clinical dental pharmacology is gaining importance because animal experimentation is rarely adequate for determining the safety and efficacy of experimental drugs. The therapeutic benefit obtained should be balanced against any adverse reactions. An experimental drug that reduces postoperative pain and oedema following oral surgery but causes gastrointestinal perforations cannot be considered safe.

Before he begins a clinical trial with a new drug, the investigator must have access to all data from related animal pharmacology. Clinical testing requires skillful observation and full statistical analysis of the results. In addition to knowledge of the action of the drug, the investigator must consider the choice of appropriate subjects, the appropriate dosage, adequate controls, collection of data, sensitivity of the method and statistical significance. Chance occurrence of external influences must be eliminated. Random allocation of the subjects to test and control groups can reduce external influences provided an adequate number of patients participate in the trial. As a basis for comparison, the placebo is the control of choice. The double blind procedure eliminates investigator bias. By this method neither the clinician nor the subjects know whether the drug being administered is the test compound or inert control.

Patients should be told of the circumstances under which a drug is being administered. Permission should be obtained from all patients taking part in clinical dental trials.

Drug evaluation is simplified if the response to the drug is measured by objective quantitative findings. Variability in the oral pathological processes and the presence of external forces may influence the results. Conclusive proof of the efficacy of drugs rests on statistical analysis of the results.

A clinical trial must seek the answer to a precise question. The proper selection of experimental subjects is equally important because it increases the chance of detecting an effect. If, for example, the trial is limited to caries in young children, only generalizations applicable to such subjects can be made from the re-

sults. Other clinical studies are necessary for determining effects in adults.

A first requirement is to define precisely the oral disease or oral symptom to be treated. The diagnostic criteria for clinical dental trials must be reproducible, valid, and as simple as possible. When uniformity of diagnosis is lacking, agreement between various investigators may be little better than would be attained by tossing a coin.

An uncontrollable factor is the loss of participating subjects after the trial has started—patients who default and fail to complete the trial. Test and control groups may be comparable at the start of the study but not at the end of the study. Moreover, in a clinical caries study, random allocation of subjects between treatments does not always equalize all the relevant prognostic factors. It is therefore desirable to stratify the subjects at the outset. As a result of careful selection and stratification of subjects, a clear picture will emerge from what might otherwise be chaos.

Certain other standards should be observed in a clinical trial. The investigator should anticipate all possible variables which may influence the results. Extraneous variables should be eliminated insofar as this is possible. The investigator must be unbiased. He must never know which patient received the experimental or control drug until the trial has been completed and the results assessed. The patient must not know what drug he is receiving. This is the double blind technique.

Before selecting a patient for a clinical trial, he must be judged eligible to receive any of the experimental or control treatments. After eligibility is determined, each patient is assigned one of the treatments to be utilized in the clinical trial. The experimental and control drugs must look alike, smell alike, taste alike, and be packaged in identical containers.

Random allocation of patients is essential for the validity of statistical tests. It eliminates personal responsibility for such allocations and thereby removes personal conscious or unconscious bias. Patients can be assigned at random from a table of random numbers or by some

other suitable method. The investigator should not know what the random method encompasses. He must use concurrent controls in patients who, to the best of his knowledge, do not differ from the treated patients. Control subjects should be matched with experimental subjects. Experimental and control subjects must be handled alike except in the application of the experimental agent. Controls are necessary in order to increase the precision and sensitivity of the trial. Controls ensure the validity of conclusions drawn from the clinical trial.

Clinical trials should be designed so that the results will be convincing. The results should not be susceptible to alternative interpretation. A trial that results in multiple explanations rather than a single one fails to demonstrate efficacy.

The investigator should know the specific aims of the investigation and be cognizant of the target population to which the results of his investigation are intended to apply. He must accumulate sufficient data to be certain of his results.

Retrospective investigations are notoriously fallacious. Prospective investigations are necessary to demonstrate substantial evidence of efficacy. The results of a prospective clinical trial should be subjected to statistical analysis in order to determine their reliability. More than one clinical investigator or group of investigators working independently is necessary in order to demonstrate substantial evidence of the efficacy of a new dental drug.

Investigations of drug combinations should demonstrate that the combination is better than the individual ingredients alone and a placebo. Too little attention is paid to the phenomenon of drug inter-

action. There may be increased synthesis of drug-metabolizing enzymes by one drug of a pair, resulting in reduced pharmacological activity of the second drug. Similarly, a drug may inhibit the metabolism of another and thus intensify the action of the second drug. It is neither practical nor prudent to separate drug efficacy from drug safety. The concept of benefit-risk ratio is inherent in every decision dealing with the safety of a drug. The need is weighed in respect to the danger.

Testimonial evidence is totally inadequate to support the efficacy of a dental drug. Thirty human subjects thoroughly studied with proper controls and complete clinical and laboratory evidence are worth more than 300 poorly investigated subjects or 3,000 testimonials.

Drug labelling should accurately reflect the results obtained from clinical trials. The labelling should include 'full disclosure'—a complete description of all contra-indications, warnings, precautions, and adverse reactions. The advertising should accurately reflect the results obtained from clinical investigations.

It is important for an investigator to obtain as much information as he possibly can concerning the mechanism of action of the drug under investigation. The following cardinal criteria are recommended for successful clinical trials; (1) proper selection of patients; (2) proper experimental design; (3) observation of results over an adequate period of time; (4) sufficient information on which effectiveness and safety can be judged.

*Oral pathologist, Bureau of Medicine, Food and Drug Administration, US Department of Health, Education and Welfare, Washington, DC.

9039 Sligo Creek Parkway

Artificial Sweeteners Safe • According to the United States Food and Drug Administration there is no scientific evidence that artificial sweeteners are a health hazard. — AMA News, October 23, 1967.



Mandible of *Homo habilis*. A, side view. Note the degree of attrition of the first molar, the attrition facet on the first bicuspid and the lines of enamel hypoplasia evident on the cuspid. B, occlusal view. The unerupted third molar on the left side establishes the mandible as that of a juvenile. The extensive attritional wear of the first molars has exposed points of underlying dentine, but the cusp pattern remains identifiable as similar to that of modern human first molars (the *Dryopithecus* Y-5 pattern). The attrition facet on the mesio-buccal cusp of the second molar probably indicates that it erupted prior to the bicuspid. This would be the reverse of the general modern human eruption pattern. The thick shelving of bone on the lingual aspect of the symphyseal region is in contrast to that in modern man. The upward and inward displacement of the right mandibular body resulted from a fracture in the right cuspid region. C, anterior view. Fractures at the sites of the two cuspids have distorted the dental arch. Faint lines of enamel hypoplasia can be seen on the incisors. The dentition of *H. habilis* is essentially of modern human form but enlarged by comparison.

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Alberta Faculty receives cast of fossil mandible of *Homo habilis*

Eight years have passed since the remains of a hitherto unknown prehistoric hominid creature were first discovered at Olduvai Gorge, northern Tanzania, in East Africa. Scientists, studying the fossil remains of 40 teeth, parts of three skulls and some hand, foot and collar bones, realized that they had stumbled on a new species belonging to the genus man. The remains suggested that the former owners were capable of making crude tools. Scientists therefore labelled the creature *Homo habilis* (Leakey, L. S. B., Tobias, P. V. and Napier, J. R. A new

species of the genus *Homo* from Olduvai Gorge. *Nature* (London) 202:7, April 4, 1964).

Most of the evidence for distinguishing *H. habilis* from other partially hominized primates, particularly the Australopithecines, is based on the mandible pictured in the accompanying photographs. The size, shape and proportions of the habiline teeth and jaw tend toward modern human dimensions, and differ sufficiently from those of the ape-like Australopithecines as to establish a separate, intermediate hominid species. Details of cusp pat-

tern and size, tooth position and eruption order and attrition facets determine the species affiliation of fossils, the approximate developmental age of individuals, and give some indication of their diet. The bicuspid and molars of *H. habilis* are generally smaller, significantly narrower bucco-lingually, and more elongated mesio-distally than those of the Australopithecines. The habiline dentition is, however, generally larger than that of modern man.

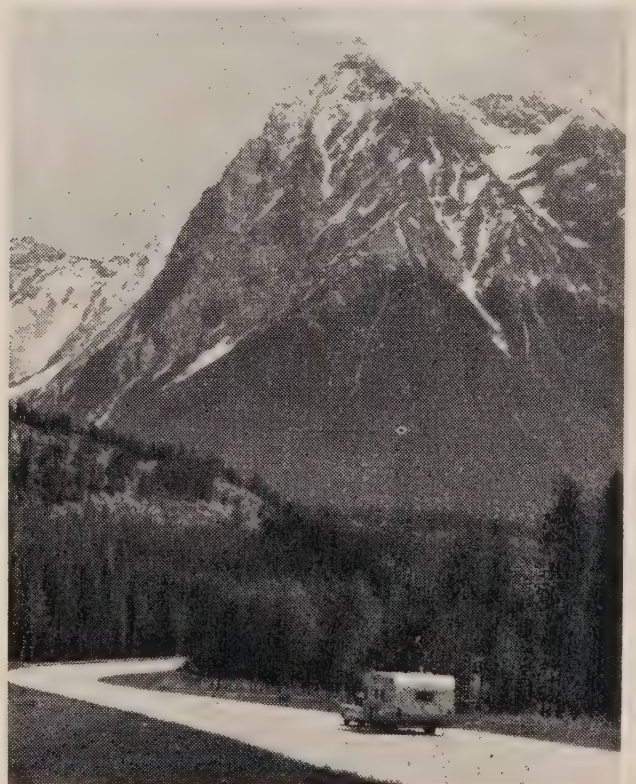
A cast of the 'type specimen' mandible of *H. habilis* was recently received by the University of Alberta's Faculty of Dentistry as a gift from the anatomy department of the University of the Witwatersrand, Johannesburg, South Africa. The mandible is that of a juvenile with an unerupted third molar. Considerable attritional wear of the first molars indicates consumption of a fairly coarse (possibly granivorous) diet or early eruption of these teeth. Lines of hypoplastic pitted enamel, especially evident on the cuspids, indicate possible illness or malnutrition at approximately two and again at 4-5 years of age. No dental caries or perio-

dontic bone loss is evident, although alveolar process deficiency of the buccal segment of the left quadrant (and right cuspid region) has caused some exposure of the dental roots. The absence of a chin and the tendency to a 'simian shelf' on the lingual aspect of the mandibular symphysis emphasize the primitive features of this creature, notwithstanding its nearly human dentition. Fracture of the mandible through the right cuspid region has distorted the dental arcade by upward and inward displacement of the mandibular body.

Associated findings indicate that *H. habilis* was a small creature with a relatively large brain who possibly made the primitive stone implements with which his fossilized remains were found. The geological age of these findings has been established at 1.75 million years. The significance of *H. habilis* is its evolutionary intermediacy between the Australopithecines and Hominines and the establishment of a hominid creature in the early Pleistocene period of geological time (Tobias, P. V. Early man in East Africa. Science 149:22, July 2, 1965).

G. H. Sperber

British Columbia Government Photograph



Why not vacation in Yoho National Park, British Columbia, next summer? Remember, the July 1 holiday is only days after the CDA National Convention in Vancouver, June 27-29, 1968. Include this scientific meeting as part of your trip to the beautiful Pacific Coast. Write to the British Columbia Dental Association for information on clinical and social activities. Address enquiries to the BC Dental Association, 325-925 West Georgia Street, Vancouver 1, British Columbia.

abstracts

Denture Education for Edentulous Patients

A. M. LaVere. *J. Prosth. Dent.* 16:1013, 1966.

Suggestions are made regarding the advice and instructions to patients with certain health and nutritional problems. The author discusses the instruction of denture patients and suggests specific advice to be given that will help in preparing patients to meet the problems they face. He identifies diagnostic signs that make it possible for the dentist to recognize the extra problems before they cause complaints about the new dentures. Obviously, an accurate diagnosis is essential and it involves more than noting that the patient has no teeth. With this information, the patient's problems can be predicted so that his expectations will not be beyond the possibility of realization. Treatment by dentures is closely related to physical and mental health, and dentists must make the correlation if the patients are to be successfully treated.

Jaw Registrations and Articulators

H. O. Beck. *J. Amer. Dent. Ass.* 73:863, 1966.

The three types of articulator, classified according to design and general function, are the suspension type, in which the upper bow may move from one or from several common points; the tripod type, in which the upper member may move on adjustable guides; and the axis type, in which the upper member may move on an axis or axes through a solid or a split shaft terminating in the guiding mechanism. The suspension-type instrument makes use of average values. The tripod type permits individual adjustment of guides and may be reset for each position during construction of dentures; face bow record and transfer is unnecessary. The axis type instrument is the one most commonly used. All are reliable, approved instruments, but their proper use requires that the dentist understand the instrument of his choice and that he use it with good judgement. He must be mindful that an instrument may simulate, but can never duplicate, mandibular movements.

Is Dental Health Education the Answer?

Barbara A. Robinson, Eugenia L. Mobley and Martha B. Pointer. *J. Amer. Dent. Ass.* 74:124, 1967.

Positive dental health habits and attitudes are best established before the teen age years. In a four year study designed to determine the effectiveness of dental health education given to 392 first year high school students, it was found that dental health facts may be learned after childhood, but that the knowledge does little to motivate the alteration of preformed habits. At the end of the study, a dental health education test was given. Performance on the examination was generally good, but the Debris Index of the educated group increased, and only a small number of the subjects practised procedures that were taught to alleviate or prevent periodontic disease. The educated group took advantage of preventive dentistry.

Clinical Evaluation of Stannous Fluoride when Used as a Constituent of a Compatible Prophylactic Paste, as a Topical Solution, and in a Dentifrice in Naval Personnel

F. T. Scola and C. A. Ostrom. *J. Amer. Dent. Ass.* 73:1306, 1966.

Three topical stannous fluoride-containing agents, prophylactic paste (17.5 per cent stannous fluoride), topical aqueous solution (10 per cent stannous fluoride), and dentifrice (0.4 per cent stannous fluoride), reduced the caries attack rate in naval personnel. After 12 months, groups receiving the three-agent treatment had twice as many subjects who showed no new carious tooth surfaces as the placebo-treated group.

Relining Complete Dentures with the Use of a Functional Impression

K. M. Tucker. *J. Prosth. Dent.* 16:1054, 1966.

A tissue conditioning material is used for making the impression, and an autopolymer

acrylic resin is substituted for the soft impression material. There are several advantages to this technique. Abused tissues can be returned to a normal condition before the impression is made. A 'functional impression' that incorporates the natural movements in relations of the jaws is developed by the patient. Furthermore, the use of an autopolymer acrylic resin and pressure curing conserves time and produces a well-cured material.

Repair of Periodontic Tissues Following Acute Localized Osteomyelitis

B. S. Moskow, B. H. Wasserman, L. S. Hirschfeld and M. L. Morris. Periodontics 5:29, January-February, 1967.

Osteomyelitis denotes a progressive inflammation of bone and bone marrow that spreads easily through the Haversian systems of cancellous bone often resulting in necrosis of large areas of bone, rapid loosening of teeth and sequestration. This disease must be considered in the differential diagnosis of acute lesions affecting the periodontic tissues. These lesions are most commonly seen in the mandibular anterior region, are associated with a severe gnawing pain, and initially present clinical signs which are minimal and often obscure. The pattern of osseous destruction is usually diffuse and ill-defined, and can be noted on a day to day basis by x-ray. Excessive mobility of the involved teeth and separation of the gingiva from the root surface are later findings.

Local therapy, including debridement, curettage, wire ligation and administration of antibiotics is often the only therapy necessary. Complete resolution and regeneration of supporting tissues can be expected in this type of problem.

Amalgam Restorations at the Minimum Mercury Content

W. L. Wann. J. Amer. Dent. Ass. 73:1321, 1966.

The dry mix technique of preparing amalgam restorations seems to produce results not uniformly possible with any excess mercury technique. The dry mix technique, having a minimum mercury content, is the superior technique. Residual mercury contents greater than 43 per cent are not necessary or desirable in amalgam restorations. In the dry mix technique, carving is easier and can be done immediately after condensing, the margins are superior to those in the free mercury technique, and the composition of the filling is uniform.

Retention Pins Are Friction Locked Without Use of Cement

P. M. Goldstein. J. Amer. Dent. Ass. 73:1103, 1966.

An improved technique permits the use of pins of small diameter and removes the chance of dislodging the inserted pin while the restoration is being inserted. These small pins are desirable when working on thin anterior teeth and when placing several crowded pins on a posterior tooth. By this method, a pin of 0.022 inch diameter is driven into a hole of 0.021 inch diameter drilled into the dentine. This stainless steel retention pin takes advantage of the elasticity of the dentine and requires no cement. There is little danger of splitting the tooth because of the extremely small diameter of the pin and the elasticity of the dentine. This technique may be used anywhere in the mouth within reach of the drill and the pin setter.

The Open-Ended Metal Column for the Dental X-ray Machine

L. F. Menczer. J. Amer. Dent. Ass. 73:1083, 1966.

To replace the plastic pointer cone in the offices of dentists in private practice, the author designed and fabricated eight different open-ended metal columns. This new device eliminates extraneous, secondary, scatter and, in some instances, leakage radiation, thereby preventing unnecessary patient exposure. Film fogging is eliminated and more sharply defined radiographs are produced. Acceptance of the column approached 100 per cent; 315 columns were installed in the offices of 260 dentists. The manufacturers of dental x-ray equipment have also expressed interest in such an open-ended metal or shielded column.

Effectiveness of a Stannous Fluoride-Calcium Pyrophosphate Dentifrice on Dental Caries in Children Whose Teeth Calcified in a Natural Fluoride Area

C. W. Gish and J. C. Muhler. J. Amer. Dent. Ass. 73:853, 1966.

Caries reductions of 30 and 35 per cent were found among children who used a stannous fluoride-calcium pyrophosphate dentifrice for 24 months. These reductions in caries experience are similar to those reported at the end of the first year of the study and are further evidence that use of a stannous fluoride dentifrice adds to the caries-reducing effect of near optimum levels of fluoride in the water supply.

dentistry in the news

The Association

Dentists Urged to Present Own Dental Schemes

CDA President W. P. Munsie has urged dentists to take the initiative in proposing their own dental care plans in the face of approaching medicare (due to start across Canada July 1). Addressing the Montreal Dental Club October 30, 1967, he said that if dentists want a say in the final program, it is up to them to offer their own schemes to the government.

British Columbia is already studying a plan which will cover children first, Dr. Munsie said, adding that a scheme beginning with children is the best step in providing care for the entire population.

In view of the indefinite date when government-sponsored dental insurance may be included in medicare, Dr. Munsie asked dentists to take the lead in working out the plans.

Dr. Munsie is also chairman of the Task Force supervising development and promotion of a CDA Children's Dental Program.

President Munsie Champions Private Practice

CDA President W. P. Munsie reiterated his call for a profession-sponsored dental health plan when he addressed a Toronto Academy of Dentistry audience November 23. He said that dentists, through the Canadian Dental Association, must per-

suade national authorities that private practitioners can offer Canadians effective dental health care by applying the latest scientific and technical advances including expanded utilization of auxiliaries in private practice.

Dr. Munsie cited the hazards and opportunities inherent in the Canada Medical Care Act and the Hall Commission report. Universal medicare based on Ottawa's guidelines is imminent because no province can long afford to reject federal subsidies derived from consolidated revenue. He added that dentistry, as part of total health, will also be drawn in before long.

Dr. Munsie also warned about the risk of fragmentation embodied in the Hall report. The Commission recommended that children be treated by persons who are neither dentists nor associated with private practitioners. This 'solution,' said Dr. Munsie, was advocated by persons who are held in high public esteem, and could materialize unless we show how the problem can be met by dentists and their auxiliaries working in private practice.

New Booklet on Dentistry Available

The Canadian Dental Association has published a new easy-to-read picture story booklet about dentistry. Called "A Vital Service," the brochure, which is suitable for use in dentists' reception rooms, explains how dentists and their auxiliaries are trained and acquire skills for the many facets of modern dental practice. The overriding theme is the need for 'pro-

essional' services, particularly with regard to dentures.

Sample copies of the booklet have been mailed to CDA members. Additional copies are available at 10 cents each from the Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario.

News from parliament

Ottawa Team to Study Health Manpower

The following remarks by Federal Health and Welfare Minister A. J. MacEachen are quoted from the October 28, 1967 *Hansard*:

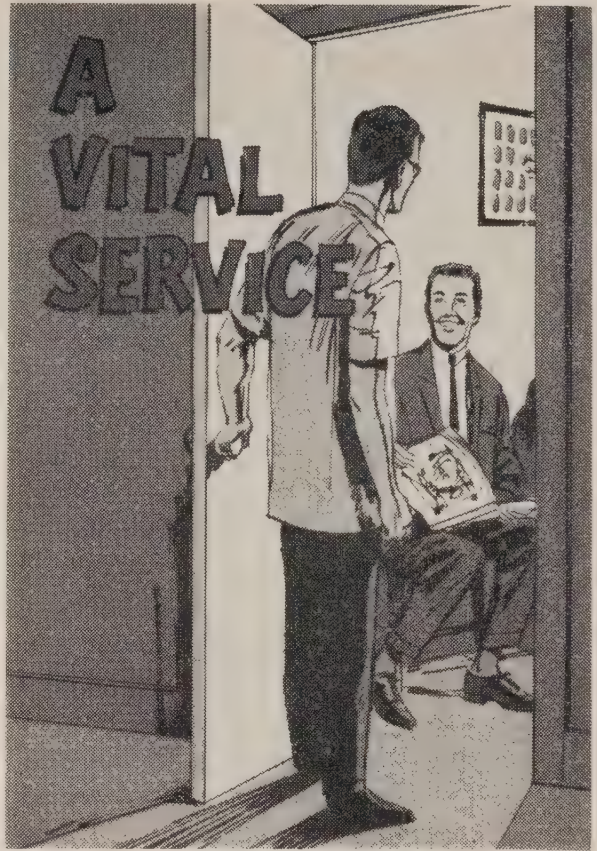
... We have decided to select a team of persons for the purpose of continuing studies in the health and manpower field. This team will consist of three members. We have selected a physician, representing a very large and important component of the health professions, and we have selected a nurse, since the nursing profession is also very important and represents a large component of those engaged in this work. There will be a third person, as yet unnamed, who will likely be selected from one of the allied health professions. There is a large number of allied health professions, including optometry, dentistry and physiotherapy, for example.

The fact that a profession is not included by representation on this team is not to be taken as indicating any lack of appreciation of its importance. We hope that as our program develops and as we rely on further advice from the professions an opportunity will be given to all the professions to give their counsel . . .

Canada and the Provinces

Royal College of Dentists Offers Cooperation to Other Dental Organizations

An official of the Royal College of Dentists of Canada has re-affirmed the intention of the College to exchange representatives with the Canadian Dental Association "so that both organizations may remain in close touch with one another." Addressing a Toronto East Dental Association conference on specialization November 20, J. E. Speck, secretary of the Royal College, said that the College had no desire to exist in isolation even though



A new CDA brochure for patient education.

it was initiated as an autonomous body by the CDA. "We are anxious to cooperate with the CDA, the corporate members, the specialty organizations and the licensing boards in order to extend appropriate recognition to dentists who complete advanced formal education in dentistry and who are successful in the examinations of the College," Dr. Speck declared.

To implement interlocking representation, Dr. Speck said the Royal College intends to invite the chairman of the CDA Council on Education and the chairman of the CDA Committee on Specialists and Specialization to attend its council meetings. The College has also accepted an invitation to present informational statements at future meetings of the CDA Board of Governors.

Dr. Speck said that the Royal College of Dentists of Canada is fully aware that granting specialty certification is the prerogative of the provincial licensing boards, and that the College has no intention, or even authority, to try to alter this situation. "However," added Dr. Speck, "two provincial licensing boards have asked whether they may use some part or parts of the examination results of the Royal

College as a criterion for specialty certification in their provinces."

"This College," continued Dr. Speck, "is anxious to cooperate with provincial boards if so requested, and the results of the examinations of the College could, if desired by these boards, be made available to them for whatever disposition they deem appropriate. The results of these examinations would not in any way be binding on provincial boards. The final authority in certifying would still rest with the provincial boards making whatever use they desired of Royal College standards," he explained. "The Royal College, on the other hand, is prepared to grant fellowship status [not certification] to dentists who fulfil the requirements of the College in advanced graduate training and who pass the Part I and Part II examinations of the College."

Five Year Dentist Shortage Predicted

Southwestern Ontario faces a shortage of dentists for at least another five years, according to W. J. Dunn, dean of the University of Western Ontario's Faculty of Dentistry. Graduate dentists will not be entering the area in appreciable numbers until 1972-73.

Dr. Dunn based this prediction on the fact that surveys show that many graduates return to communities where they were raised or those of similar types. A dental course started at UWO in 1966, aimed at students from southwestern Ontario, will start showing noticeable results in about five years' time, he said.

In the meantime, Dr. Dunn urged small communities to encourage good public health programs and the fluoridation of drinking water.

Hamilton Dentist Wins Office Design Award

D. G. Coburn, Hamilton, was recently awarded an \$8,875 grant from the federal Department of Industry for research in the design of dental offices and equipment.

The Hamilton dentist has long been interested in technological advances such as

washed field dentistry, lounge chairs and the team approach to dental practice. He will use the grant to develop and test new dental operating room designs intended to increase the volume of dental care and diminish stress and fatigue for the dentist. Memo-motion photography will be used to analyse the range of operating techniques in different dental office environments. From the results Dr. Coburn expects to establish guidelines for further improvements in the dental practice environment.

Assisting Dr. Coburn are David Jenkins, a Hamilton industrial designer; Laurie McIntosh, a Toronto industrial designer; Z. B. Nyeste, a Montreal dentist and a pioneer in memo-motion photography in dentistry; Edmund Reid, a Toronto film producer; and several additional volunteer dentists.

International Items

Latin America Needs More Dental Services

Less than one-half of the dental needs in urban Latin American countries are being met, according to a former World Health Organization dental director. Mario Chaves of Brazil, addressing an international conference during the American Dental Association annual session in Washington October 31, outlined these facts about current dental health needs in the southern part of the Western Hemisphere:

"The most common situation (is) one in which only between one-fourth and one-tenth of the treatment needs are being met in urban communities, and much less in rural communities;

"In large urban centres, where good resources often exist, usually not more than one-half of the dental needs are met."

Dr. Chaves explained that many Latin American countries are now undertaking programs designed to meet dental needs more adequately.

"A significant development which may lead to improved knowledge in Latin America is the creation of an international centre for dental epidemiology and ap-

plied dental research at the School of Public Health at the University of Sao Paulo in Brazil. "Early this year," he said, "a first course was given in Sao Paulo to dentists of various countries in Latin America, aiming at utilization of a common methodology and uniform criteria for disease assessment in dental surveys." Dr. Chaves observed that a similar dental epidemiology program is being conducted by the World Health Organization.

Although fluoridation has made slow progress in Latin America the situation is changing. Two factors, said Dr. Chaves, signal improvement in the fluoridation picture. "The first one is the development of a well co-ordinated program by the Pan American Health Organization, with assistance from the Kellogg Foundation, for the training of engineers in, and promotion of, water fluoridation in Latin America. The second factor is the intensification of construction of new water systems in Latin America with loans from international sources. Some of these new systems have water fluoridation as a built-in provision in the loan contract."

In addition, fluorspar, which is now being used successfully in some fluoridation programs, is widely available in Brazil. This brings promise of greatly increasing the use of fluoridation within the next few years, since fluorspar equipment can be produced at low cost.

Dr. Ostrander ADA President

F. Darl Ostrander of Ann Arbor, Michigan, is the new president of the American Dental Association. He was installed November 2 at the close of the ADA's 108th annual session in Washington.

Also at Washington, the ADA:

Voted approval of a resolution asking state dental societies and examining boards to consider recommending revisions of dental practice acts to achieve more effective use of dental hygienists and assistants by practitioners,

Urged state societies and examining boards to recommend the elimination from their acts of serial listing of functions performed by the dental hygienist, and

Approved a record \$7 million budget with an \$81,285 deficit.

Commenting on the 1968 budget, the ADA Board of Trustees said it "was not prepared to venture on a large(r) deficit without the assurance that only the House of Delegates can give by approving an increase in dues at the first opportunity — in 1968."

Ski Dental Seminar in Wisconsin February 19-22

Canadian dentists have been invited to attend the fourth annual Midwest Ski Dental Seminar February 19-22 at Mount Telemark, Cable, Wisconsin. The meeting is sponsored by the Northwest District Dental Society of Wisconsin. The registration fee of \$10 should be mailed directly to T. G. Kliszcz, Hayward, Wisconsin, USA.

Periodontists to Meet in Las Vegas March 31 - April 2

Canadian dentists have been invited to attend the 15th annual scientific meeting of the Western Society of Periodontology at the Tropicana Hotel, Las Vegas, Nevada, March 31-April 2. The theme of the meeting is "A Total Oral Concept." Guest essayist will be Irving Gordon, chief of periodontology, Mt. Sinai Hospital Dental Clinic, Miami Beach; chairman, Section of Periodontology, Dade County Dental Research Clinic, Miami; and visiting lecturer at the University of Pennsylvania, Graduate School of Periodontics.

Further information may be obtained by writing to Ida Eichorst, 925 West 34th Street, Room 146, Los Angeles, California 90007, USA.

Seek Lecturers, Clinicians for 1968 ADA Annual Session

Canadian dentists have been invited to participate in the scientific program of the American Dental Association's 1968 annual session in Miami Beach. Applications for presentation of clinical lectures, table

clinics, scientific and educational exhibits and motion pictures during the 109th annual session, October 27-31, can be obtained on request from the office of the Council on Scientific Session, American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611, USA. Applicants should specify the area in which participation is desired. Applications must be received by the Council before April to be considered.

Dental Organizations

Four Provincial Groups Raise Licence Fees

An increase in the annual licence fee from \$125 to \$165 for Alberta dentists has been approved by Order in Council. The raise was authorized at the Alberta Dental Association's annual meeting in Calgary June 2.

Reasons for the increase were (1) rising administration costs for the Alberta Dental Association, (2) a proposal to increase the Alberta grant to the Canadian Dental Association by at least \$10 per member, and (3) the need for an improved public information program.

Increased grants to the CDA have also been announced by the Prince Edward Island Dental Association and the College of Dental Surgeons of Saskatchewan. Both have offered to raise their per capita grant from \$40 to \$50. In British Columbia the 1968 licence fee has been raised to \$185. Twenty dollars of this increase will be used to raise the per capita grant to the CDA from \$40 to \$60 if other provincial organizations will do the same.

Saskatchewan College Elects Dr. Fraser

R. J. Fraser, North Battleford, was elected president of the College of Dental Surgeons of Saskatchewan when the College held its annual meeting November 13-14. He succeeds H. H. Cowburn, Saskatoon. F. T. Wihak, Regina, was named vice-president. F. R. Smith, Saskatoon, was re-appointed secretary-registrar. Board

members are F. L. Pierce, Swift Current, and C. G. Halliday, Saskatoon.

Crown and Bridge Course in Montreal April 25-27

The Mount Royal Dental Society and the Montreal Alumni Chapter of Alpha Omega Fraternity will present a limited attendance course in crown and bridge prosthodontics at the Strathcona Medical Building, Faculty of Dentistry, McGill University, Montreal, April 25-27. The course, directed by Ray Contino, will be on a graduate level. Closed circuit television will be used for demonstrations. Cheques for the tuition fee of \$125 should be made payable to "Crown and Bridge Course in Trust" and forwarded to H. Ptack, 1538 Sherbrooke St. W., Suite 903, Montreal, Que.

Montreal Société Installs Dr. Lussier

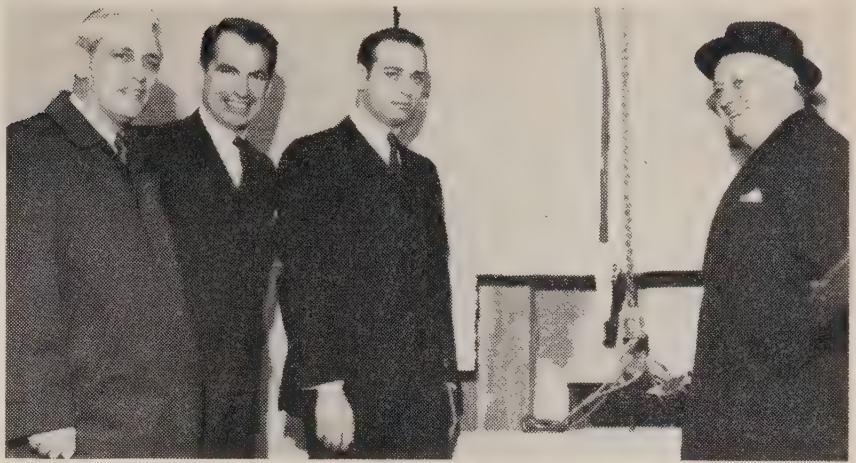
Gérard Lussier has been installed as new president of the Société Dentaire de Montréal. He succeeds François Cloutier. Other members of the executive are: Hubert La Belle, president-elect; Lucien Latour, second vice-president; Jacques Casaubon, treasurer; Léon Daigle, librarian; François Cloutier, adviser; Jacques Matteau, secretary; and Percy Génier, assistant secretary. Named as councillors were Guy La Haye, Gilles Leduc, Yves Boivin, René Bourcier, Pierre Gagnon and Pierre-Jean Trudeau.

Canadian Dental Schools

Cornerstone Laid for UWO's New Dental Sciences Building

The cornerstone for the new Dental Sciences Building at the University of Western Ontario was laid by Col. D. B. Weldon, chairman of the Board of Governors of the university, last October 20. Chairman of the ceremony was D. C. Williams, president and vice-chancellor. W. J. Dunn, dean of UWO's Faculty of Dentistry, and

Seen at the laying of the cornerstone for the University of Western Ontario's new Dental Sciences Building are (l. to r.) D. C. Williams, president and vice-chancellor of the university; W. J. Dunn, dean of the Faculty of Dentistry; A. J. Goldfarb, president of the Dental Students' Society; and Col. D. B. Weldon, chairman of the Board of Governors.



A. J. Goldfarb, president of the Dental Students' Society assisted Col. Weldon.

Among the contents of the cornerstone are pictures and programs of the school's historical events, UWO publications, a reprint of Dean Dunn's article, "Canada's Eighth Dental School is Born" (*J. Canad. Dent. Ass.* 31:693, 1965), a copy of the September 1967 *Journal of the Canadian Dental Association* and the CDA's 1968 Dental Aptitude Test brochure, and donations from Miss Laura Woolverton whose father was the first dentist on the academic staff at UWO.

Toronto Faculty Slates Open House Feb. 11

Dental education will again be on public display when Toronto's Faculty of Dentistry stages its annual 'Open House' on Sunday, February 11. This annual event provides an opportunity for everyone interested in dentistry — plus their families and friends — to visit the University of Toronto dental building and observe, through student exhibits and demonstrations, modern dental education in action.

The dental building is located at 124 Edward Street, off University Avenue, immediately south of the Hospital for Sick Children.

1867 Dental Office on Display at Toronto Faculty

A replica of an '1867 Dental Office' is currently on display in the museum at the Faculty of Dentistry, University of To-

ronto. Included in the office are a cabinet used by J. B. Willmott, co-founder and first dean of the School of Dentistry of the Royal College of Dental Surgeons of Ontario, 1875 to 1915, and a rare nitrous oxide gas apparatus used by J. A. Marshall who was president of the Ontario Dental Association 1897-1898. The present J. A. Marshall of Belleville is still carrying on his grandfather's practice which is said to be the oldest continuous practice in Canada, dating back to 1844 and the time of G. V. N. Relyea.

Other interesting exhibits are a picture of the RCDS class of 1893 featuring the first woman dentist to graduate in Ontario, Mrs. Josephine Wells; a portrait of A. J. McDonagh who, in 1909, established in the college the first chair of periodontology in the world; a portrait of J. Neelands who is credited with the administration of the first general anaesthetic for dental purposes in Canada in 1865; and a composite photograph of the 1917 dental hockey club, the 'Toronto Dentals,' who were Allan Cup winners and world amateur hockey champions.

Economics

ADA Approves Plan for Auxiliaries

The American Dental Association, at its annual session October 29 to November 2, 1967, approved a policy asking "that constituent dental societies and state dental examining boards consider recommending revision of dental practice acts

(1) to give their examining boards authority to prescribe rules or regulations to achieve more effective utilization of the services of dental hygienists and dental assistants and (2) to eliminate from their acts the serial listing of functions performed by the dental hygienist."

Interest Shown in Denticare

Nearly 2,000 groups have shown interest in the Ontario Hospital Association's recently announced dental insurance plan, according to a report in the October 31 *Toronto Telegram*. The scheme, which began November 1, covers employee groups of 25 or more for all dental treatment except orthodontics.

Public Health

Okanagan Children's Dental Health Improves

The dental decay attack rate in Okanagan school children has dropped by 10 per cent since 1960. Press reports say there are now less than half the number of lost permanent teeth observed seven years ago. Of the three local health units, the South Okanagan unit has the lowest percentage of children showing lost permanent teeth and the largest percentage under dental care.

In Kelowna four out of five grade 1 children were either cavity-free or under dental care last year, and only 15 per cent needed premature tooth extraction. Teeth of grade 1 Kelowna children have improved for four consecutive years, thereby becoming the best in the Okanagan Valley. Penticton grade 1 children were a close second. Kelowna's water supply has been fluoridated since 1956.

Ontario PH Dentists Elect

Ontario public health dentists have asked the Canadian Society of Public Health Dentists to prepare a brief on children's dental programs for submission to the Ex-

ecutive Council of the Canadian Dental Association.

Newly elected officers of the Ontario Association of Public Health Dentists are D. W. Lewis, Toronto, chairman, and E. S. Shaunessy, Newmarket, secretary.

Fluoridation

OPHA Backs Fluoridation Aid

Pressed by its Dental Section, the Ontario Public Health Association has urged the provincial government to help Ontario municipalities pay for new fluoridation equipment. A resolution adopted at the OPHA annual meeting in Niagara Falls last October 18 asks the government to institute a method whereby municipalities adopting fluoridation programs "may recover the cost of the necessary installation from the province."

Newly elected officers of the Dental Section are: D. W. Lewis, Toronto, chairman; H. S. Grey, Toronto, vice-chairman and Conference Committee representative; and E. S. Shaunessy, Newmarket, secretary and Membership Committee representative.

Injunction Order Refused in Charlottetown

A provincial Supreme Court judge, October 26, refused an injunction against fluoridation of Charlottetown's water supply (see also "Injunction Against Fluoridation in Charlottetown," p. 342, June Journal).

Mr. Justice R. R. Bell, in handing down his decision, said that he found no irregularity in the city's vote of February 1967 and that the Legislature had empowered Charlottetown to hold such a plebiscite.

The October 27, 1967 *Charlottetown Patriot* added that the plaintiff's lawyer intends to appeal against the Supreme Court decision.

Fluoridation Ties in N. Battleford

The November 1 fluoridation plebiscite in North Battleford, Saskatchewan, resulted

in a total of 1,402 votes both for and against the measure. The town council then asked for briefs to be presented at a special council meeting. Thereafter council members voted five to one in favour of fluoridating the water supply.

Deaths

Allan, Gordon Wesley. 64. Toronto. Royal College of Dental Surgeons of Ontario, 1925. 25-11-67. Survived by Jessie (wife); G. W. N. Allan (son); Heather Allan (granddaughter); and Thelma Allan (sister).

Cation, James Murray. 81. Toronto. Royal College of Dental Surgeons of Ontario, 1909. 6-12-67. Survived by Laura Isabel (wife) and Mrs. E. M. Glover, Mrs. D. W. McKinnon and Mrs. J. R. Bentley (daughters).

Chapdelaine, Jean-Marie. 55. Plessisville, Qué. Université de Montréal, 1940. 2-11-67.

Hooley, Michael Joseph. 75. Chatham, Ont. Royal College of Dental Surgeons of Ontario, 1917. 20-11-67. Survived by Helen (wife).

Lessard, M. Léonce. 68. Québec. Université de Montréal, 1926. 21-10-67.

Lipsey, Clarence Howard. 72. Edmonton. Royal College of Dental Surgeons of Ontario, 1916. 25-11-67. Survived by Bertha (wife) and Mrs. A. Johnson and Mrs. L. McLeod (daughters).

Mahoney, Carl Joseph. 68. Toronto. Royal College of Dental Surgeons of Ontario,

1920. 29-11-67. Survived by Mrs. Frank Higgins (sister).

Shuttleworth, Robert Fred. 70. Bracebridge, Ont. Royal College of Dental Surgeons of Ontario, 1925. 26-11-67. Survived by Rita (wife).

Widdowson, Reuben. 81. Winnipeg. College of Physicians and Surgeons (Glasgow), 1911. 29-10-67.

Awards and Honours

H. S. Thomson, Moncton, NB, was awarded the Wm. J. Gies Award by the American College of Dentists at its annual meeting in Washington, November 1. This honour is given in recognition of accomplishments and meritorious service to the dental profession. Dr. Thomson's efforts were largely responsible for the recognition given to dental public health by federal and provincial governments. He served for 34 years as head of the Canadian Dental Hygiene Council and was one of the first members of the International Association of Dental Research. Dr. Thomson is also a past president of the American College of Dentists.

R. G. Romcke of Summerside, Prince Edward Island, has won the G. T. Mitton Award for 1966-67. This annual award goes to the student in the course in dental public health at the University of Toronto judged most worthy of recognition. Dr. Romcke is presently with the PEI Department of Health.

Take advantage of the Canadian Dental Association's registered Retirement Savings Plan to beat inflation and supplement a guaranteed pension. Tax deductible contributions are allocated at your discretion to a government bond fund, a corporate bond fund or a common stock fund. At retirement you convert your holdings to an annuity of your choice. If you need further information, the administrator of CDA sponsored pension and insurance plans, Professional and Industrial Pensions Ltd., at 2249 Yonge Street in Toronto will be glad to help you.

profession joue un rôle primordial dans ce domaine. La troisième personne qui n'a pas encore été nommée, appartiendra sans doute à l'une des professions auxiliaires. Celles-ci sont nombreuses et l'on peut citer entre autre l'optométrie, la dentisterie et la physiothérapie.

Si une profession quelconque n'est pas représentée, il ne faut pas en déduire que son importance est méconnue. Nous espérons qu'au fur et à mesure du développement de notre programme, lorsque nous aurons besoin des conseils des différentes professions, nous pourrons leur donner à toutes, l'occasion d'émettre leur avis . . .

Canada

Résultats des examens du Collège Royal

Le Collège royal des chirurgiens-dentistes du Canada a publié les noms des candidats qui ont réussi la première partie des examens (sciences fondamentales) qu'ils ont passés les 28, 29 et 30 septembre 1967.

Endodontie: R. L. Tegart, Edmonton.

Chirurgie buccale: P. Chapnick, Toronto; V. N. Direnfeld, Willowdale, Ontario; M. Kaburda, Burnaby, Colombie britannique; F. W. Lovely, Halifax; et C. W. Oyer, Calgary, Alberta.

Orthodontie: V. P. Gilbert, Toronto; E. D. McKay, Brampton, Ontario; et M. E. Sera, Willowdale, Ontario.

Prosthodontie: M. C. McClelland, Edmonton; et G. A. Zarb, Toronto.

Nouvelles du Parlement

Une équipe d'Ottawa va étudier les besoins de main-d'œuvre pour la santé publique

L'Hansard, du 28 octobre 1967, cite les propos suivants prononcés par le Ministre fédéral de la santé publique et du bien-être social, M. A. J. MacEachen.

. . . Nous avons décidé de nommer une équipe qui poursuivra des études dans le domaine de la santé publique et des besoins de main-d'œuvre. Cette équipe se composera de trois membres. Nous avons choisi un médecin pour représenter un secteur étendu et important des professions qui s'occupent de santé publique, et une infirmière puisque sa

Chronique Internationale

Le Dr Ostrander, président de l'ADA

Le Dr F. Darl Ostrander d'Ann Arbor, Michigan vient d'être nommé président de l'American Dental Association. Il a pris ses fonctions le 2 novembre, à la conclusion de la 108ème réunion annuelle de l'ADA, à Washington.

Au cours de cette réunion l'ADA: A approuvé une résolution demandant l'établissement de sociétés dentaires dans chaque état et de conseils d'examens qui recommanderaient la revision des lois qui régissent l'exercice dentaire, afin que les praticiens puissent utiliser plus efficacement les services des hygiénistes et assistant dentaires.

A demandé que les sociétés des états et les bureaux d'examen recommandent l'élimination de leurs statuts de la liste qui décrit de façon restrictive les fonctions que l'hygiéniste dentaire est autorisée à remplir.

A approuvé un budget record de \$7 millions, avec un déficit de \$81,285.

Le conseil d'administration de l'ADA, commentant le budget de 1968 a déclaré qu'il n'était pas prêt à proposer un déficit important sans que l'assemblée plénière, dont c'est la prérogative, lui assure qu'elle approuvera une augmentation des cotisations à la prochaine occasion, en 1968.

Carence de soins dentaires en Amérique latine

Dans une causerie prononcée au cours de la réunion annuelle de l'American Dental

Association tenue à Washington le 31 octobre, le docteur Mario Chaves, du Brésil, ancien directeur dentaire de l'Organisation mondiale de la santé, a exposé les besoins dentaires de l'Amérique latine.

D'une façon générale, on ne peut satisfaire qu'un quart ou un dixième des besoins dentaires dans les centres urbains et encore moins dans les campagnes.

Dans les grands centres urbains, où les conditions sont les plus favorables, on arrive à peine à satisfaire la moitié des besoins dentaires.

Le docteur Chaves a expliqué que, dans la plupart des pays d'Amérique latine, on prend déjà les mesures nécessaires pour mettre sur pied des programmes qui visent à rencontrer les besoins dentaires de la population d'une façon plus satisfaisante. La création d'un centre international d'épidémiologie dentaire et de recherche dentaire appliquée à la Faculté de santé publique de l'Université de Sao Paulo, au Brésil, devrait jouer un rôle important en améliorant les connaissances en Amérique latine. Au début de 1967, des dentistes de différents pays d'Amérique latine ont suivi un premier cours à Sao Paulo, cours pendant lequel on a cherché à établir des méthodes et des critères uniformes devant permettre l'étude des maladies dentaires au cours des enquêtes. Le docteur Chaves a fait remarquer que l'Organisation mondiale de la santé a déjà entrepris un programme semblable d'épidémiologie dentaire.

Bien que le développement de la fluoration se fasse lentement en Amérique latine, la situation s'améliore maintenant, et cela à cause de deux facteurs: grâce d'abord à la mise en œuvre par l'Organisation panaméricaine de la santé et la Fondation Kellogg d'un excellent programme qui a pour but de promouvoir la fluoration en Amérique latine, et de préparer les ingénieurs qui s'en chargeront. D'autre part, la construction d'un grand nombre d'aqueducs nouveaux favorisera la fluoration. Un bon nombre de ces aqueducs sont en effet financés par des prêts internationaux, et les prêteurs exigent la fluoration.

La matière première nécessaire à la fluoration est disponible en grande quantité au Brésil, et cela, sous des formes qui sont utilisables de façon fort écono-

mique. On peut donc prévoir à brève échéance un grand progrès de la fluoration en Amérique latine.

Organismes dentaires

Le Dr Lussier, président de la Société de Montréal

Le Dr Gérard Lussier vient d'être élu président de la société dentaire de Montréal. Il succède au Dr François Cloutier.

Les autres membres du conseil d'administration sont les Drs Hubert Labelle, président-désigné; Lucien Latour deuxième vice-président; Jacques Casaubon, trésorier; Léon Daigle, bibliothécaire; François Cloutier, conseiller; Jacques Matteau, secrétaire et Percy Génier, secrétaire adjoint.

Ont été nommés au conseil: les Drs Guy La Haye, Gilles Leduc, Yves Boivin, René Bourcier, Pierre Gagnon et Pierre-Jean Trudeau.

L'Association de l'Alberta va augmenter ses cotisations

Par arrêté du conseil, les cotisations annuelles payées par les dentistes de l'Alberta, vont être portées de \$125 à \$165. L'Alberta Dental Association a autorisé cette augmentation lors de sa réunion annuelle à Calgary, le 2 juin.

Elle a été rendue nécessaire par (1) l'augmentation des frais d'administration de l'Alberta Dental Association, (2) la proposition d'augmenter le montant de la subvention de l'Alberta à l'Association dentaire canadienne d'au moins \$10 par membre et (3) le besoin d'améliorer le programme d'information destiné au public.

Economie

La "Blue Cross" de l'Ontario annonce un programme dentaire

Le 1er novembre, l'Association des hôpitaux de l'Ontario a inauguré un program-

me d'assurance dentaire, pour les groupes de 25 employés ou plus, dans le cadre de la section "Blue Cross" de l'OHA. Ce programme offre une gamme étendue de services dentaires, à l'exception toutefois des traitements orthodontiques. Les paiements aux dentistes seraient à 100 pour-cent du barème de l'Association dentaire de l'Ontario.

La couverture complète, sans déduction, coûtera \$4.80 par mois pour un célibataire, alors que pour une famille de trois personnes, la prime se montera à \$16.80.

Un célibataire qui préfère payer lui-même \$25.00 des honoraires annuels de son dentiste ou 25 pour-cent, paiera une prime de \$2.75 par mois. La même couverture pour une famille de trois personnes ou plus coûtera \$8.25 par mois.

Il existe une troisième option pour les familles qui ont des enfants: une couverture à 100 pour-cent pour les enfants de moins de 13 ans et à 75 pour-cent seulement pour les adultes. La prime dans ce cas se montera à \$11.50.

Nouveau plan de financement des soins dentaires en Alberta

L' "Alberta Dental Association" vient d'inaugurer un nouveau programme pour permettre aux patients d'obtenir les soins dentaires dont ils ont besoin. Ce programme qui s'appelle "l'Alberta Dental Financing Plan" permet de demander un prêt pour traitement dentaire à n'importe quelle succursale de la Toronto Dominion Bank. Le traitement commence après que la banque a donné son approbation écrite à la demande présentée par le patient. Les prêts peuvent aller de \$75 à un maximum de \$1,200.

Le traitement terminé, le dentiste reçoit ses honoraires dans les limites prescrites, moins une retenue de 5 pour-cent. La somme prêtée par la banque ne pourra pas dépasser le montant total du traitement si celui-ci est inférieur à l'estimation, ou le montant estimé si le coût total dépasse l'estimation. Dans ce dernier cas, le patient peut être facturé pour la différence.

La retenue de 5 pour-cent sera déposée dans un compte-réserve pour couvrir les prêts qui ne seront pas remboursés. Il est

possible que ce taux de 5 pour-cent soit réduit, une fois qu'une réserve suffisante aura été établie.

Les patients repaieront leurs emprunts à la banque par versements mensuels. La banque n'aura pas de recours contre le dentiste si un patient ne s'acquitte pas de sa dette.

Une corporation de C.B. négocie de nouveaux contrats

La "Northern Construction Company" a signé récemment un contrat avec la "Dental Services Association" de la Colombie britannique pour offrir des soins dentaires prépayés à ses employés. C'est le quatrième contrat de ce genre que signe la "Dental Services Association." Ce programme couvre 130 employés et leurs dépendants.

La "Burnaby Teachers' Federation" est également en train de négocier un contrat qui couvrirait 3,000 personnes.

Le Dr W. M. Joiner, de Vancouver, Président de la DSABC, a annoncé qu'un programme interne de relations professionnelles est actuellement à l'étude. Il aura pour but de tenir tous les dentistes membres au courant des activités de la DSABC.

"Denticare" suscite de l'intérêt

D'après un article du *Toronto Telegram*, publié le 31 octobre, près de 2,000 groupes ont manifesté de l'intérêt pour le programme d'assurance dentaire inauguré récemment, par l'Ontario Hospital Association. Ce programme, qui est entré en vigueur au début novembre, est offert aux groupes de 25 employés ou plus et couvre tous les soins dentaires sauf les traitements orthodontiques.

Négociation et convention collective

Lors d'une assemblée générale, l'Association professionnelle des chirurgiens dentistes du Québec a adopté à l'unanimité une résolution demandant au gouvernement de créer une loi qui régirait la

négociation collective des chirurgiens dentistes non salariés. Rappelons que l'Association professionnelle des chirurgiens dentistes du Québec a été formée en vertu de la loi des syndicats professionnels et qu'elle représente une minorité des dentistes du Québec, qui y ont librement adhéré.

L'assemblée a posé comme principe que les conditions d'exercice et de participation des professionnels de la santé à un programme gouvernemental, devrait être déterminées par la négociation collective.

On s'est aussi déclaré en faveur d'un régime universel d'assurance-maladie et l'on a exprimé son accord avec les grandes lignes du rapport Castonguay, en suggérant que les employeurs soient appelés à contribuer au financement du programme dès sa mise en application, afin de créer dès le début l'universalité du régime pour l'ensemble de la population. On s'est cependant prononcé d'accord pour que la couverture complète des soins ne soit atteinte que par étapes. Enfin, on a souhaité un élargissement de la loi d'assurance-maladie pour les assistés sociaux, de manière à inclure les soins dentaires.

Les techniciens réclament le droit d'exercice

Lors de son congrès tenu à Montréal en octobre, l'Association des techniciens dentaires de la province de Québec a tenu à faire connaître son intention de traiter directement avec le public pour la fabrication de pièces de prothèses, "comme cela se fait au Manitoba, en Alberta, en Saskatchewan et en Colombie britannique."

Les cliniques de prothèse de la Colombie britannique annoncent un profit

En Colombie britannique, les cliniques de prothèse gérées par la profession dentaire annoncent un profit général pour la période de sept mois, allant de novembre 1966 à mai 1967.

La clinique de Vancouver a opéré avec profit, cinq mois sur sept et fait un bénéfice moyen de \$93.08. La clinique de Victoria a également fait un profit, cinq mois

sur sept et son bénéfice moyen s'est monté à \$198.45. La clinique de New Westminster a réalisé un profit moyen de \$416.92, sur les sept mois. Cette clinique est restée constamment en tête, à l'exception d'un mois.

On fera de la publicité pour les prothèses dentaires dans les autobus de Vancouver, pendant une période de trois mois, afin d'augmenter la demande à la clinique de Vancouver.

La publicité des laboratoires dentaires de C.B. interdite dans l'état de Washington

Le bureau du Procureur général de l'Etat de Washington a ordonné aux journaux de l'Etat de ne plus accepter de publicité des laboratoires dentaires de la Colombie britannique. D'après la loi de l'Etat de Washington, les laboratoires dentaires n'ont pas le droit de faire de la publicité auprès du public et doivent préciser dans l'annuaire, "qu'ils ne servent que les dentistes autorisés à pratiquer."

En Colombie britannique, les mécaniciens-dentistes ont le droit de traiter directement avec le public et de se faire connaître à celui-ci. Dans l'Etat de Washington, seul un dentiste autorisé à pratiquer peut se faire connaître au public, comme pourvoyeur de services dentaires.

La "Washington State dental Association" a attiré l'attention du département d'état des licences professionnelles sur les annonces publicitaires placées dans trois journaux de l'Etat de Washington, par un mécanicien-dentiste de la C.B. Le bureau du Procureur général a été ensuite saisi de la question et a demandé aux trois journaux "de refuser à l'avenir, les annonces de laboratoires dentaires de la Colombie britannique qui essayent de faire affaires directement avec les citoyens de cet état, sans passer par un dentiste autorisé à pratiquer."

Fluoration

Fluoration à Châteauguay

A la suite d'une décision unanime du conseil municipal de la ville de Château-

guay, on a entrepris les travaux nécessaires pour que les citoyens bénéficient de la fluoration dès le début de 1968. Il est intéressant de remarquer que l'installation de l'équipement nécessaire ne coûtera que \$6,000 et qu'on n'aura à défrayer que 0.15c par habitant par année pour faire fonctionner cet équipement.

Refus d'une injonction à Charlottetown

Le 26 octobre, un juge de la Cour Suprême a refusé d'accorder une injonction pour empêcher Charlottetown de fluorer son eau (voir également "Injonction contre la fluoration à Charlottetown," p. 401, du numéro de juin).

Monsieur le Juge, R. R. Bell, en rendant sa décision a déclaré que le vote municipal de février 1967 était légal et que le Parlement avait donné à Charlottetown, le droit de faire un plébiscite de ce genre.

Le *Charlottetown Patriot*, du 27 octobre 1967, ajoutait que l'avocat du plaignant a l'intention de faire appel.

Deux municipalités de l'Alberta acceptent la fluoration, cinq la rejettent

Deux agglomérations sur sept ont adopté la fluoration en Alberta, après des plébiscites qui ont eu lieu le 18 octobre.

Pincher Creek et Taber se sont déclarés en faveur de la fluoration alors que Vauxhall, Brooks, Lethbridge, Viking et Wainwright rejetaient cette mesure.

10,764 personnes seulement ont voté sur les 31,696 qui y avaient droit.

Trois grandes villes optent pour la fluoration

D'après les rapports reçus par l'Association dentaire canadienne trois grands centres urbains, où des plébiscites eurent lieu, en 1966, se sont déclarés en faveur de la fluoration et ont commencé à fluorer leur eau.

Edmonton, qui alimente en eau 380,800 personnes dans la ville même et ses environs, a commencé à fluorer, le 29 août. Les 180,800 habitants de London ont eu,

pour la première fois, de l'eau fluorée le 1er septembre, alors que Hamilton, qui fournit aussi Dundas et Stony Creek, a inauguré son programme de fluoration, le 23 octobre; cette ville dessert une population de 315,000 personnes.

Ceci signifie que 875,000 personnes supplémentaires disposent maintenant d'eau fluorée, ce qui porte le total pour le Canada, à plus de 5,800,000.

De nouvelles recommandations pour la fluoration en C.B.

Les "Associated Boards of Health" de la Colombie britannique, lors de leur récente réunion à Stanley Park, ont recommandé une modification de la loi provinciale sur la fluoration de l'eau, pour favoriser cette mesure. D'après la loi actuelle, il faut une majorité de 60 pour-cent en faveur de la fluoration avant de pouvoir fluorer l'eau d'une agglomération.

D'après un rapport publié dans le *Vancouver Sun* du 4 octobre, on a pris à cette réunion une résolution demandant qu'il n'y ait plébiscite que si 10 pour-cent des électeurs signent une pétition anti-fluoration, dans les 30 jours de la décision du conseil municipal. Cette résolution demandait aussi que la majorité requise soit réduite à 51 pour-cent.

On a également fait remarquer que 8 pour-cent seulement de la population de la Colombie britannique disposent d'eau fluorée. Le gouvernement fédéral sera prié de fournir des subsides (jusqu'à \$5,000 ou 50 pour-cent des coûts) aux agglomérations de moins de 10,000 habitants pour leur permettre d'acquérir l'équipement nécessaire à la fluoration.

Santé publique

Un expert en hygiène dentaire nommé à Ottawa

Mlle Sharon Amer, de Vancouver, la première Canadienne à laquelle ait été décernée une maîtrise en hygiène dentaire, a été nommée à un nouveau poste créé à Ottawa, pour aider au développe-

ment de l'enseignement, des services et des opportunités dans le domaine de l'hygiène dentaire à l'échelle nationale. Elle sera à la disposition des autorités provinciales pour les aider à établir et à améliorer des programmes de dispensaires pour la santé publique et pour créer un service consultatif à la disposition de toutes les facultés dentaires, en aidant plus particulièrement celles qui inaugurent ou élargissent des programmes d'hygiène dentaire. Mademoiselle Amer aidera le responsable de la santé dentaire du Ministère à préparer de la documentation sur l'hygiène dentaire. Elle collaborera également avec le responsable de la recherche et conseillera le chef du département de la santé dentaire sur toutes les questions relatives à l'hygiène dentaire.

Mlle Amer a un baccalauréat ès lettres en sociologie et psychologie, de l'Université de la Colombie britannique ainsi qu'un baccalauréat et une maîtrise ès sciences en hygiène dentaire de l'Université Columbia, de New York.

L'OPHA se réunit aux Chutes du Niagara

A l'instigation de sa section dentaire, l'Ontario Public Health Association a demandé instamment au gouvernement provincial d'aider les municipalités de l'Ontario à payer leur nouvel équipement de fluoration. A sa réunion annuelle, aux Chutes du Niagara, le 18 octobre dernier, l'OPHA a adopté une résolution demandant au gouvernement d'adopter un système aux termes duquel "la Province rembourserait le coût des installations de fluoration" aux municipalités qui adopteraient des programmes à cet effet.

La santé dentaire des enfants d'Okanagan s'améliore

Les caries dentaires chez les enfants d'âge scolaire, à Okanagan (Colombie britannique) ont diminué de 10 pour-cent depuis 1960. D'après les journaux, les extractions de dents permanentes ont

diminué de plus de la moitié dans les sept dernières années. Des trois centres dentaires existants, celui du sud d'Okanagan a le plus faible pourcentage d'enfants qui ont perdu des dents permanentes et le plus large pourcentage sous contrôle dentaire.

A Kelowna, quatre enfants sur cinq, en première année, n'avaient pas de carie ou étaient surveillés par un dentiste depuis un an et 15 pour-cent seulement eurent besoin d'extractions prématurées. L'état des dents des enfants de Kelowna s'est amélioré pendant quatre années consécutives jusqu'à devenir le meilleur dans la vallée d'Okanagan. Les enfants de première année de Penticton les suivent de près. L'eau de Kelowna est fluorée depuis 1956.

Distinctions honorifiques

Le Dr **C. H. M. Williams** a été élu président de l'American Academy of Periodontology le 28 octobre. Le Dr Williams, qui est professeur et président du département de parodontologie à l'Université de Toronto, s'est acquis une réputation internationale par la contribution qu'il a apportée à la parodontologie et à ses applications pratiques.

Le secrétaire de l'ADC, le Dr **W. G. McIntosh**, vient d'être nommé membre honoraire de l'American Dental Association, le 30 octobre. Le Dr McIntosh a reçu la plus haute distinction accordée par l'ADA en reconnaissance de ses efforts pour assurer des "relations étroites et cordiales" entre les Associations dentaires canadiennes et américaines.

Le Dr **Benjamin Sedlezky**, président de la "Mount Royal Dental Society" et de "l'Alumni Chapter" de la fraternité Alpha Omega vient d'être nommé président honoraire de la Société dentaire de Montréal pour le restant de la durée de son mandat.

Oral Surgery: Transactions, 2nd Congress of the International Association of Oral Surgeons

Erik Husted and Erik Hjørting-Hansen, ed. Copenhagen, Munksgaard, 1967. 470 p. Illus. \$20.00

This volume is the first international collection of reports on oral surgery. It is compiled from grouped contributions of different clinical aspects of oral surgery that were reviewed at the Second International Conference on Oral Surgery held in Copenhagen in June 1965. The contributors represent a wide, geographic distribution. The reports are by devoted, dedicated men in the specialty of oral surgery and related clinical and basic sciences.

A large section of the book is devoted to clinical experiences and research advances related to benign and malignant oral neoplasms. Another section is devoted to disturbances of growth and development of the facial skeleton. Many variables of developmental patterns are described and specific treatments are given for each. Cystic lesions of the jaws are reviewed in depth. The variability of lining is noted, with emphasis on the neoplastic potentialities thereof.

There are several articles on surgical procedures adjunctive to the construction of prostheses. Individual articles are presented on the management of facial pain, salivary gland disease and inflammatory diseases, temporomandibular joint pathology and traumatic injuries to the face and jaws. The international aspect of the book is reflected by sound, yet varying, views on management of traumatic injuries. Interesting personal techniques are advanced, such as those of Giorgio dal Pont of Italy in his use of metal hooks for interarch fixation. There are several good papers on implants, reimplantation and transplantation. There is also a section on general anaesthesia.

This book will be cherished internationally by all oral surgeons, especially those who were unable to attend this excellent conference. It will be most enlightening to readers interested in the treatment of diseases of the oral cavity, human jaws and associated structures.

F. W. Lovely

Dental Health Education

Frances A. Stoll and Joan L. Catherman. Philadelphia, Lea & Febiger, 1967. (Available from The Macmillan Company of Canada Limited) 360 p. Illus. \$8.75

This well written text is enriched with excellent material from many sources which are listed at the end of each chapter. The book has four distinct parts dealing with the setting for dental health education, methods of dental health education in schools, the role of instructional materials, and education of patients during treatment.

In part 1 the authors define health and health education. They also explain the organization of official health agencies and their programs at the federal, state and local levels in the United States. This information, though interesting, is of little use to Canadian readers. There is a complete chapter on the growth and functions of the mouth and teeth. While this is adequate and useful for an educator with no dental training, there are better sources of relevant information for the dental or dental hygiene student. The remaining chapters in this section are extremely valuable. They deal with the significance of dental health to total health and the control of dental disabilities through education.

Section 2 is intended primarily for dental hygienists and educators. It deals with planning, organization and evaluation of dental health programs in schools and with the philosophy and methods of dental health instruction.

Section 3 is valuable for anyone concerned with the use of audiovisual aids and mass media. One chapter deals with the educational concept of verbal communication and has valuable instruction in the preparation and use of lecture material.

For the practising dentist, section 4 is the most important part of the book. It deals with chairside and office education. This section should be read by all dental practitioners and dental hygienists.

This book is well illustrated and easy to read. It is essentially a text on community dentistry for dental hygienists and not merely a book confined to dental health education. Although its greatest value is for

dental hygiene and education students, the book should be read by all members of the dental team because dental health education is the most important service they can render.

D. J. Yeo

Pharmacology for the Dental Hygienist

A. H. Kutscher, E. V. Zegarelli, G. A. Hyman, Patricia McLean and Helene W. Kutscher. Philadelphia, Lea & Febiger, 1967. (Available from the Macmillan Co. of Canada Limited, Toronto) 358 p. \$10.50

One may well ask why a dental hygienist should require such an extensive text on pharmacology. The answer is that hygienists are faced with a curriculum that is quite similar to that of the dental student, only less profound. This book, which has 132 contributors, all prominent dentists, has been handled in the same manner. It is, as stated by the publishers, a condensation of the material which appeared in *Pharmaco-Therapeutics of Oral Disease* by the same authors. The result is still a sizable volume consisting of 332 pages of concentrated basic pharmacology and therapeutics.

The book is divided into three main sections and an epitome.

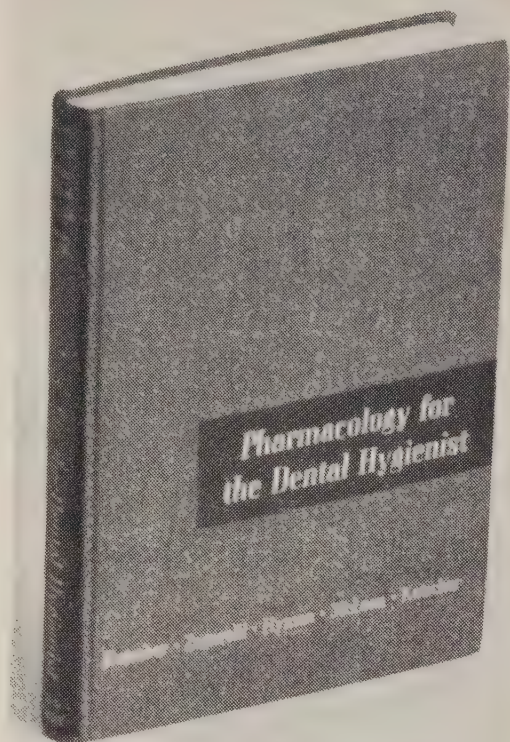
Part 1 deals with the 'General Principles of Pharmacology.' This section is of great importance and should be read by the general practitioner as well as by his hygienist. It very adequately covers all untoward effects of drugs that one may encounter, as well as the expected actions and effects of drugs.

Part 2 deals with the 'General Considerations of Drug Groups.' This is the main body of this work. Here, all drug groups are discussed in detail. The material covers general anaesthetics, local anaesthetics, cardiovascular agents, expectorants, vitamins, hormones, and antihistamines to mention only a few. Although these are agents which a dentist or physician would administer, the hygienist should know them and understand them.

Part 3 deals specifically with 'Clinical Therapeutics for the Dental Hygienist.' This covers the agents which the hygienist herself can apply.

Finally there is an Epitome, printed on blue paper for easy location. The editors cite three reasons for this Epitome: first, it consolidates therapeutic information which is basically applicable to many areas of the text. Secondly, it is a means of avoiding the reading of repetitious details. Thirdly, it provides a simple practical and easily found reference for further information about certain drugs and drug groups and their application to oral disease.

This is a well written and complete book



on pharmacology and therapeutics. I recommend it highly for dentists as well as the dental hygienists.

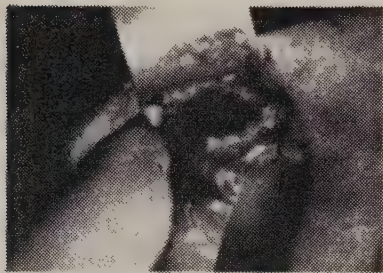
L. E. Francis.

Origenes de la Odontologia (Origins of Dentistry)

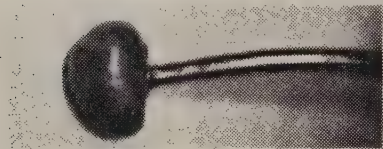
F. Febres-Cordero. Caracas, Venezuela, Universidad Central de Venezuela, Facultad de Odontologia, Biblioteca, 1966. 131 p. Illus. \$3.00

The major portion of this slim volume purporting to cover the early history of dentistry is written in Spanish with some English summaries. Dr. Febres-Cordero's book is intended as a contribution for the Venezuelan Society of the History of Medicine. The book consists of two parts. In the first part, the author describes the Mesopotamian, and in the second, the Egyptian civilizations. In both parts of the book he gives details about the two civilizations including their society, religion and art. This subject matter occupies a great deal of the book. The dental aspect is very briefly covered in both parts of the book. There are a large number of figures illustrating general aspects of these civilizations with no relationship to dentistry or its origin whatsoever. The book in general could be considered as a short review of the history of the Mesopotamian and Egyptian civilizations including some comments about dentistry. Therefore the title, "Origins of Dentistry," is a very misleading one since the book contains very little dental history.

O. N. Lucas



This is shown in Fig. 2 as a case of a lesion of the tooth, which is being examined.



The dental mirror is used to examine the tooth, which is shown in Fig. 2 as a case of a lesion of the tooth.



This is shown in Fig. 2 as a case of a lesion of the tooth, which is being examined.

A page from "Benign Cystic Lesions of the Jaws."

Benign Cystic Lesions of the Jaws: Their Diagnosis and Treatment

H. C. Killey and L. W. Kay. Edinburgh and London, E. & S. Livingstone Ltd., 1966. (Available from The Macmillan Company of Canada Limited, Toronto) 135 p. Illus. \$3.75

The authors are to be congratulated upon writing such an excellent and readable monograph. Although it is described in the preface as being a guide for students and practitioners, there is also valuable information for the oral surgeon. From the initial chapter on classifications to the final chapter on complications, the wide experience of the authors quickly emerges. Varying opinions and theories are presented and discussed in a clear and simple manner. The appendix, a review of 459 consecutive cystic lesions of the jaws over a six year period, will be well quoted in future literature.

Not everything has been written with the student in mind. There is a tendency to dwell on the rare lesions, such as solitary bone cysts and Stafne's idiopathic cavity, to the extent that the usually accepted definition of a cyst has been changed. The

lesions quoted are not generally accepted as being cystic, but this divergence from the essential common sense simplicity of the text is atypical of the publication as a whole.

I hope that the publishers have further monographs in the pipeline and that they continue to make these available in the new soft back style at the very reasonable price of \$3.75.

A. G. Parnell

Modern Practice in Dental Ceramics

J. F. Johnston, George Mumford and R. W. Dykema. Philadelphia and London, W. B. Saunders Company, 1967. (Available from McAtinsh & Co. Limited, Toronto) 312 p. Illus. \$14.05

Emphasis on aesthetics in modern dental practice necessitates a fresh approach to the subject of ceramics. This text makes an honest and successful attempt to fulfil this need.

The early chapters acquaint the reader with fundamentals of ceramic materials and recent innovations in fusing equipment. The subject of colour is given adequate treatment under "Aesthetic Considerations." There is an excellent review of proven and accepted methods for porcelain jacket crown construction. The subject of porcelain-bonded-to-metal is particularly well treated, with special consideration for several types of materials available at present. All the information presented is based on sound practical experience backed by good fundamental research.

The authors are to be congratulated for the excellence of organization of their subject matter. The publishers are likewise complimented on the clarity of the illustrations and print. This book is recommended to the general practitioner and student alike for its valuable information.

Z. Kasloff

Minor Tooth Movement in General Practice

Leonard Hirschfeld and Arnold Geiger. Ed. 2. St. Louis, C. V. Mosby Company, 1966. 637 p. Illus. \$17.50

Teeth that are inclined, spaced or elongated can interfere with occlusion and predispose to periodontic disease, caries and unsightly appearance in adults. Minor tooth movement may correct many of these problems. In this text for general practitioners, the authors describe the causes of such malocclusions and give a detailed account of the examination and careful selection of cases suitable for tooth movement. The book describes most of the known removable appliances used for straightening inclined teeth; it also

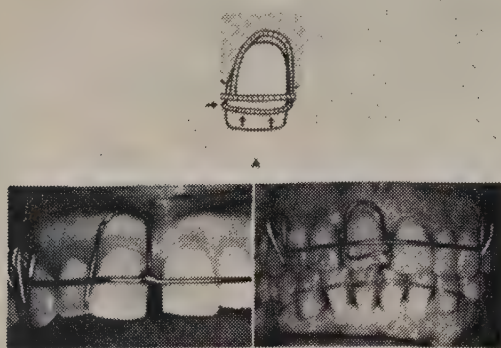


Fig. 213. A loop spring can move a tooth in two directions. At once. A. The spring was consisted of a loop above. B. or it may have a provision that ends sub-permanently C, and upsets the tooth distapalately.



Fig. 214. A hook spring for moving the cuspid distally. A hook for a rubber chain attached for retraction of the incisor, and an Adams clasp for retention. Hooks like this are usually placed distal to the cuspid rather than the first bicuspid, but in this case it would have interfered with the distal movement of the cuspid. In addition, the distal portion of the cuspid spring was placed against the mesial surface of the bicuspid, occlusal to the contact point so that the cuspid might be moved into contact with the bicuspid.

(Fig. 214). The anterior labial arch was usually attached to the acrylic-and-wire appliance in, in effect, a double-loop spring.

A 1 spring is a relative short, straight spring, usually soldered to the labial arch wire with a short wire attached to its end in the form of a 1 (Fig. 215).

The wire of choice for each type of spring is the one with the smallest diameter, but one that is not likely to be disturbed in the patient's manipulation of the appliance. Lingual retracted springs of 0.022-inch gold or 0.020-inch steel

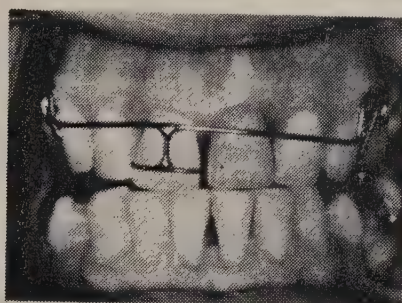


Fig. 215. A 1 spring consists of a short, straight spring with another short wire attached to its end. The spring usually is soldered to the arch wire. B. It may be attached to the loop in the cuspid area to apply pressure to that tooth.



Fig. 216. Appliance-type spring, attached to arch wires at both ends. A light wire can be used (0.010 inch or 0.020 inch) without fear of distortion in the patient on the basis of modification because of the double attachments. It will be complete with the arch. The light spring to the lower arch, only the middle is added with the ends in contact around the arch. (From Adams, C. P.: The design and construction of removable orthodontic appliances. London, 1933, John Wright & Sons, Ltd.)

A typical page from "Minor Tooth Movement in General Practice."

deals with fixed banding techniques where bodily movement is required. There is a wealth of information, much of it published previously, but nevertheless important enough to bear repetition. An example is the excellent chapter on minor tooth movement in the developing dentition.

The text is outstanding on three counts: first, because the authors have managed to sift and correlate a vast amount of information from books, dental periodicals and personal observations; secondly, because the basic principles and techniques of minor tooth movement can be applied to dental malocclusions in adults and children; and thirdly, because of the book's extensive bibliography which constitutes an invaluable index for further study.

T. J. Hackie

to such an individual. On the other hand, the complexity of some of the suggested procedures may conceivably confound a recent graduate for whom the book might have special appeal.

In addition, a question arises concerning the validity of certain psychological observations and conclusions that are presented. These could perhaps confuse a practitioner embarking on his vocation; they appear contradictory to individuals with a career of practice behind them.

Although much of the material makes interesting reading, the book is not an outstanding contribution to the literature on practice administration.

James Sim

Modern Dental Practice: Concepts and Procedures

L. N. Hollander. Philadelphia and London, W. B. Saunders Company, 1967. (Available from McAinsh & Co. Limited, Toronto) 197 p. \$10.80

Many useful, if perhaps ideal, concepts are contained in this review of modern dental practice. Certainly, every mature practitioner has developed particular concepts regarding methods of practice, and one might question the usefulness of this book

Immediate and Replacement Dentures

J. N. Anderson and Roy Storer. Oxford, Blackwell Scientific Publications, 1966. (Available from The Ryerson Press, Toronto) 362 p. Illus. \$14.25

This book, while it is well organized in format, adds nothing new to the literature on the subject. It may well suit the needs of the United Kingdom but would certainly lack appeal for the North American dentist. I believe that some basic concepts set forth in the book are erroneous.

W. G. Woods

library • bibliothèque

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In search of understanding

No man is an Iland, intire of itselſe; every man is a piece of the Continent, a part of the maine; if a Clod bee washed away by the Sea, Europe is the leſſe, as well as if a Promontorie were, as well as if a Mannor of thy friends or of thine owne were, any man's death diminishes me, because I am involved in Mankinde; And therefore never ſend to know for whom the bell tolls; it tolls for thee. — John Donne.

Good communication is unquestionably the life-blood of an association; the vitality of the whole depends on the free exchange of information, ideas and attitudes among its members. In the channels of communication an editor is like the pumping station on an oil pipe line. Not only does he regulate the quantity of the information he transmits, but he must also choose what he sends on and what he sends back with due regard for the capacity of his equipment and the requirements of the market he serves.

Efficiency is as necessary in communication as in any other endeavour; yet to some dentists our system of communication seems to be less efficient every day. Knowledge and opinions do not circulate through the profession as fully as they should. Why is this so, and how can we remedy this shortcoming?

In his lucid analysis of medical journalism, Sir Theodore Fox¹ contrasts the recorder and newspaper functions of the medical press. The recorder journal exists mostly for the benefit of the author who wants his work to be known and who wants the details to be on record so that fellow-experts can assess or repeat it. The newspaper journal, on the other hand, depends on being read and is therefore edited in the interest of the reader rather than the contributor. Its whole purpose is to enlighten and enliven, to ensure that information quickly reaches those who can use it. With standards no less stringent than those of the recorder journal, the newspaper journal should be informative, interpretative and critical.²

The *Journal of the Canadian Dental Association*, by design and from economic necessity, seeks to fulfil both tasks. First, by tradition, we try to disseminate the reports of dental investigators. We would not find it easy to abandon this commitment altogether. Our reputation depends considerably on our publishing a selection of the latest scientific information. Though it may interest a scant 20 readers, an article on Enamel Solubility in Hypophysectomized Hamsters may some day turn out to be important. We are, of course, as well aware

as our readers that few patients resemble hypophysectomized hamsters; but in order to go on publishing scientific contributions at all, we have to take some rough with the smooth and make the Journal useful to contributors as well as to readers.

But the Journal must do more than supply information. It must offer interpretation and opinion based on news.² It must also permit discussion and criticism after the information is distributed. Canadian dentists have an immense amount to say to one another besides what goes into scientific reports. That is why their Journal offers news and correspondence columns where readers may learn what is in the minds of their colleagues. Such columns, moreover, serve as a safety valve for dissident opinion and as a device for bringing and keeping the members of the profession together. Words, however contradictory, preserve contact; it is silence which isolates.

Of course, every journal is to some degree an individual enterprise that reflects the editor's creative talents. An editor who is an innovator cherishes the freedom he enjoys within the limits imposed by the proprietors, subscribers and advertisers of his journal. Where the proprietor is a professional organization, he labours perforce under a handicap. Though he may gain on balance by having direct access to information, his impulses as an artist sometimes conflict with his duties as an expositor of some official policy. This, as Fox points out, is a situation where a good many eyes should be deliberately blind, for if the profession wants a successful journal it must provide the degree of freedom a newspaper will always need for success. Though a day may come when journals will be superseded as a means of publishing new research, they will still be indispensable in our system of communication — provided they can be the newspapers that system will always need.

1. Fox, Sir Theodore. *Crisis in communication*. University of London, Athlone Press, 1965.

2. Emery, Edwin, Ault, P. H. and Agee, W. K. *Introduction to mass communication*. New York and Toronto, Dodd Mead and Company, 1960.

En quête de compréhension

Du point de vue de son existence même, notre association dépend sans aucun doute des contacts qui s'établissent entre les membres; sa vitalité demande un libre échange d'informations, d'idées et de points de vue. Un rédacteur, au centre des avenues de communication, se trouve dans la position d'une station d'essence sur un oléoduc. Il ne se contente pas de régler la quantité des renseignements qu'il transmet, il doit aussi choisir ce qu'il va publier et ce qu'il va éliminer, en fonction des moyens qui sont à sa disposition et des exigences de son marché.

Certains dentistes semblent penser que notre système d'échange perd chaque jour un peu de cette efficacité indispensable à un bon système de communication. Les connaissances et les opinions ne circulent pas à travers la profession aussi librement qu'elles le devraient. Quelle est la raison de cette situation et comment y remédier?

Sir Theodore Fox,¹ dans son analyse du journalisme médical, oppose la divulgation scientifique au journalisme médical. La divulgation scientifique

existe à l'usage des auteurs qui veulent faire connaître leurs travaux et qui désirent en consigner les détails pour que leurs collègues puissent les évaluer et les répéter. Le journal, par contre, est fait pour être lu et sa publication est en fonction du lecteur plutôt que de l'auteur. Son but est de renseigner, de stimuler l'intérêt et ceci aussi rapidement que possible. Ses standards sont aussi stricts que ceux de la divulgation scientifique et il doit être à fois une source d'information, d'interprétation et de critique.²

Le *Journal de l'Association dentaire canadienne*, de par sa conception et pour des raisons économiques, cherche à jouer ces deux rôles. Tout d'abord, et conformément à notre tradition, nous essayons de publier les rapports des chercheurs. C'est là une tâche à laquelle il nous serait difficile de nous soustraire entièrement. Notre réputation dépend, en grande partie, de la publication d'une sélection des derniers écrits scientifiques. Même s'il n'intéresse qu'une vingtaine de lecteurs, un article sur la solubilité de l'émail chez les hamsters privés d'hypophyse peut, un jour, se révéler important. Nous savons tout aussi bien que nos lecteurs qu'il n'y a pas beaucoup de patients qui ressemblent à ces hamsters, mais si nous voulons publier des communications scientifiques, nous ne pouvons pas faire preuve d'une trop grande discrimination et nous devons servir les auteurs tout comme les lecteurs.

Le Journal ne doit pas, toutefois, se contenter de renseigner. Il doit interpréter les nouvelles et les juger.² Il doit aussi, après avoir disséminé les nouvelles, en encourager la discussion et la critique. Les dentistes canadiens ont bien d'autres choses à débattre que des rapports scientifiques: c'est pourquoi le Journal leur offre des colonnes de nouvelles et met à leur disposition une rubrique où les lecteurs peuvent exposer leur point de vue. Ces colonnes servent aussi de soupape de sécurité. En permettant l'expression d'opinions dissidentes elles créent un lien entre les membres de la profession. Les paroles, aussi contradictoires soient-elles, préservent le contact alors que le silence isole.

Evidemment, et jusqu'à un certain point, les journaux sont des entreprises individuelles qui reflètent les talents créateurs de leur rédacteur. Un rédacteur qui a de l'imagination apprécie la liberté dont il jouit dans les limites que lui imposent les propriétaires, les abonnés et ceux qui font de la publicité dans son journal. Lorsque le propriétaire est un organisme professionnel, il a un problème supplémentaire. Il a peut-être l'avantage de recevoir directement les nouvelles mais par contre ses tendances personnelles peuvent entrer en conflit avec les directives officielles dont il doit se faire l'agent. C'est une situation sur laquelle il faut bien souvent fermer les yeux, comme l'a fait remarquer Fox, car si la profession désire que son journal ait du succès, il faut qu'il jouisse de la liberté nécessaire à ce succès. Peut-être qu'un jour les journaux seront-ils remplacés comme moyen de diffusion des recherches, mais ils demeureront toujours un moyen de communication indispensable, à condition d'être des journaux qui communiquent effectivement avec leurs lecteurs.

1. Fox, Sir Theodore. *Crisis in communication*. University of London, Athlone Press, 1965.

2. Emery, Edwin, Ault, P. H. et Agee, W. K. *Introduction to mass communication*. New York et Toronto, Dodd Mead and Company, 1960.

Motivation of patients

It takes more than dental health education to get people to the dentist. It apparently takes more than sound data on the aetiology of cancer to get people to stop smoking. You can tell people what to do, but just how do you get them to do it? Many people just don't accept those things which are obviously going to be good for them unless the rewards include financial gains, fame, or better personal appearance. The desire for better health or fear of death are not strong enough forces to motivate many people to seek out sound health services.

Dentistry continues to face two serious problems with no solution in sight: (1) how to motivate people to seek dental care and (2) how to motivate patients to accept our recommendations once they have decided to ask for our help. The obvious solution to the first problem is to eliminate or reduce the factors which deter potential patients from the office, i.e., eliminate the cost, the fear, the distrust, the apathy, the inconvenience, etc., and then provide incentives to make dental care more attractive than just better oral health alone. It is, of course, impossible to eliminate all of the deterrents and to develop incentives that would be meaningful enough to all. Yet, why not try?

Prepayment programs don't eliminate the cost, but they make for a workable family budget. The profession is doing a commendable job of diminishing fear since pain has been markedly reduced during dental procedures. But the problems of apathy and distrust still loom large. They will be solved only over a long period and only by focusing our efforts on children. It is almost impossible to motivate adults to establish new habits, especially if any displeasure is involved, but children can be moulded. Dental health educational efforts in pre-natal clinics, child health clinics, physicians' offices, and intensified efforts in the schools provide the greatest hope.

Many patients fail to follow the suggestions of the dentist. They may be late or miss appointments, they may fail to practise sound preventive procedures, or they may fail to return for regular re-examinations. Although the temptation is great, dismissal of these patients usually does not help their problem although it may boost the ego of the dentist. Wouldn't it be better to recognize the weaknesses of these patients and then make the necessary adjustments to prevent disruption of the office schedule and the dentist's psyche instead of saying, "I quit?"

Patients are people, and sometimes they do strange things. They are not always rational or even polite, but practically all patients need help. They need to be motivated to accept that help—motivation that requires our understanding, our flexibility, and our willingness to be patient.

W. E. Brown

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.

The King of Spadina Crescent

The following passage, composed by Peter Stevens, was submitted by Dr. S. R. Gelmon of Saskatoon. Mr. Stevens, who is assistant professor of English at the University of Saskatchewan, uses this humorous yet sympathetic text to exemplify creative poetry for his students.

Walls palely purple soothe to seraglio mood
entice to the tingling brink of sensual
delicacies.

The king's blue-coated minions
croon their husky words
flash their star-white smiles
bustling about their business
fastening sheet and bib
tilting the chair and there
under the polish of metal monkeys
dangling on whip-jaunty springs
hypnotized by glints of chrome claws
I wait.

The starry smiles have hoaxed me once
again
the husky whispers now a cool threat.
Gothic guarantees — DENTAL SURGEON
CLINICIAN

shout at me from the walls —
The University of Minnesota —
damn Yanks — can't trust 'em —
can't even write their diplomas in Latin.

My head rests in giant ear-muffs
so I can't hear who's sneaking up behind
but I can hear water running
and down the corridor a high whine —
the drill, of course, or some human
suddenly transformed to a screeching bat
flying higher and higher, then —
pain out of ear range!

On the other side of the wall's mocking
purple
what sounds like a buzz saw rasps . . .
Get this side of the jaw off. Too slack,
you know.

Fit you with a gold one.
GOLDJAW — the man with the 22 karat jaw
see him crunch his enemies . . .
Why did my tooth have to break?
That's what comes of insisting on English
mincemeat —

damn Limeys — can't trust 'em —
just because it's got brandy in it,
but the label didn't list the contents properly —
currants, raisins, apples, brandy
and a few choice boulders from the Pennine
Chain.

At the side of the chair three buttons,
one reads FLUSH
My God! I'm on a tilted john —
that explains the running water.
After probing to the depths of my nerves
he'll send me swirling through the floor
like Sweeney Todd, the Demon Barber.

I'll slide into the basement restaurant
up to my armpits in flour
fighting with elastic dough
as vast rolling pins come to crush me —
please don't turn me into pastry for mince
pie . . .
I have no vast reserves of dignity
moral aphorisms and secret weapons in my
belt
like Batman — HELP!

The second button reads EJECT
I'm in a supersonic jet —
there's no parachute under the chair
but I'll snatch that oxygen tank from the
wall

as I go crashing through the roof
boosted vapour trailing over Spadina
Crescent
formation flying with those high bat pains —
To the bat poles!

And the third button — TEMP CONTROL
so I'm to be roasted
before I'm flushed or ejected.
Though it could mean TEMPER CONTROL—
I'm just a shivering blob by now,
I've no temper left —
but if *he* needs to control *his* temp . . .
Let me get out!

Too late! A minion's stars flash down at me.
A husky murmur brushes past the ear-muffs.
We're not quite ready for you yet.
and she releases me.
Suddenly the room is richly regal —
I'm the king now
and they're going to phone me
when my crown's ready.

'Heritage' Issue

To the Editor:

I must congratulate you on a very fine piece of journalism. The 'Heritage' issue you got out last November is really something, I think. What a lot of hard work this must have involved. I hope the dentists across Canada appreciate your efforts. I have had a lot of favourable comments regarding the Barkerville story.

L. K. Grady, DDS,
6625 Angus Drive, Vancouver, BC.

To the Editor:

The special issue of the CDA Journal, Heritage 1867/1967, is a most interesting, informative and readable edition. You, the contributors and all others involved in its publication are offered our sincere congratulations.

B. P. Kearney, Brigadier,
Director General of Dental Services for the
Canadian Forces.

To the Editor:

Congratulations on your splendid November issue of the *Journal of the Canadian Dental Association* which for some reason or other was delayed in reaching my desk. It is handsome, interesting and well done in every respect.

Leland C. Hendershot, DDS, PhD,
Editor, American Dental Association.

Manitoba Hygienists Offer Placement Service

To the Editor:

There has been an overwhelming response from the dentists of Manitoba and elsewhere for the services of dental hygienists since graduation of the first class from the School of Dental Hygiene at the University of Manitoba in 1965. The Manitoba Dental Hygienists' Association has established a liaison and placement service to assist dentists who wish to locate and employ a dental hygienist. Enquiries may be made by writing to Miss Lois A. Blackwood, c/o Manitoba Dental Association, 308 Kennedy St., Winnipeg.

Lois A. Blackwood, RDH,
308 Kennedy St., Winnipeg, Man.

CDA Library Trust Fund • The circulation of books and periodicals by the Canadian Dental Association's Library provides a valuable service to Association members. Increased circulation and the purchase of new texts make greater demands on the Association's library trust fund. All donations to the fund are therefore gratefully received. Donors are furnished receipts which entitle them to income tax deduction.

A. G. Parnell,* FDS RCS (Eng), London, Ont.

Primordial cyst of the jaw: case report

The author reports the occurrence and enucleation of a primordial cyst in the lower jaw of a 19 year old woman. This lesion differs from all other odontogenic (periodontic and dentigerous) cysts in that it begins to form during histodifferentiation of amelogenic epithelium and not from fully differentiated epithelium. Primordial cysts occur most commonly at the angle of the mandible. Their radiographic appearance may simulate that of an ameloblastoma from which they are distinguished by biopsy and microscopic examination.

L'auteur rapporte l'occurrence et l'énucléation d'un kyste primaire à la mâchoire inférieure d'une femme de 19 ans. Cette lésion diffère de tous les autres kystes odontogéniques (périodontiques et dentifère), en ce qu'il commence à se former au cours de l'histodifférenciation de l'épithélium amélogène et non à partir d'un épithélium entièrement différencié. Les kystes primaires apparaissent le plus souvent à l'angle de la mâchoire inférieure. Leur apparence radiographique peut ressembler à un améloblastome dont ils se distinguent à la biopsie et à l'examen au microscope.

The existence of primordial cysts as a separate pathological entity has been recognized for many years although surprisingly little has been written about them in the usual books of reference. They may be defined as odontogenic cysts which develop by cystic degeneration of the enamel organ before calcified structure is formed. Simple classifications¹⁻⁴ list primordial cysts as one of

three groups of intra-osseous odontogenic cysts. The other categories are periodontic cysts, (radicular, lateral or residual) and dentigerous or follicular cysts. However, primordial cysts differ from all other odontogenic cysts in that their formation begins during histodifferentiation of amelogenic epithelium and not from fully differentiated epithelium.

There is divergent opinion about the

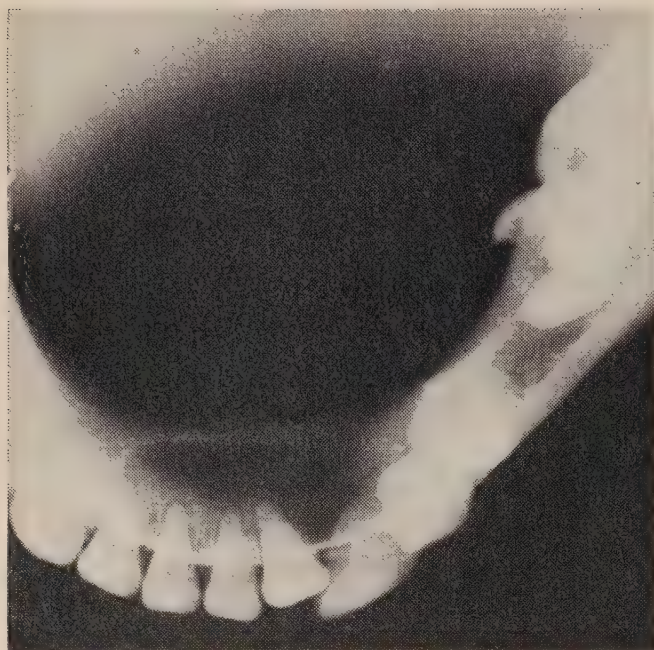


FIGURE 1 Occlusal radiograph showing lingual expansion of mandible.

incidence of these cysts. They may be more common than is generally acknowledged. Tóth and Papp⁵ contend that primordial cysts are very rare but fail to quote figures in support of this statement. After examining 400 follicular cysts Bernier⁶ found only three primordial cysts. He considers them as rare, but qualifies his findings by citing the difficulty of histodifferentiation. Other authors^{3,7,8} claim a higher frequency, an average of 4 per cent of odontogenic cysts being recorded as primordial.

The commonest site of known primordial cysts is the angle of the mandible, 13 of the 15 reported by Sonesson being in that location. Smith⁹ quotes five cases also found at the angle of the mandible. All 12 cases described by Killey and Kay were from the mandible. Nine of the 22 cases investigated by Shear¹⁰ were from the angle of the mandible. The remainder were located in the body and bicuspid areas of the mandible and in third molar, bicuspid and cuspid areas of the maxilla.

Killey and Kay observed 10 of their 12 cases in male patients. Other than that, the lesion displays no apparent sex predilection.

The age incidence varies from adolescence to old age. Sonesson found that 14 of his 15 cases occurred in patients over 30 years of age. Killey and Kay's

group displayed similar age characteristics, but Shear¹⁰ encountered an appreciably lower age range. Ten of his 22 cases occurred in patients between the ages of 14 and 27 years.

Histogenesis. — Tooth development results from histodifferentiation in the epithelium that covers the future alveolar process of the jaws in the developing embryo. An epithelial thickening appears as the basal cells of the oral epithelium begin a localized proliferation to form the dental lamina. It is from this lamina that the 10 deciduous tooth buds sprout, developing to the distinctive cap and later bell stage of amelogenesis. At the bell stage, approximately 15 weeks *in utero*, four distinct epithelial components are demonstrable. These include the internal and external enamel epithelia which are connected and are an extension of the basal layer of the oral epithelium. Between these epithelial bands are found the stratum intermedium and stellate reticulum, both derived from the prickle cells of the oral epithelium. The typical large star-shaped cells of the stellate reticulum have long processes reaching out to adjacent cells, this appearance being due to the formation of intercellular fluid.¹¹ A breakdown and liquefaction of the stellate reticulum at this time is thought to abort amelogenesis leaving a fluid filled cavity lined by epithelium and surrounded by a fibrous dental follicle—all the essential structures for cyst formation.

Clinical Features. — Clinically, primordial cysts resemble the majority of odontogenic cysts. They present as slowly expanding swellings of the jaws. Their consistency varies with the amount of overlying bone. If infected, they may present as an acute inflammation or give a purulent discharge through a sinus. Although the majority are found in the mandibular third molar region, they may develop at any site where a tooth or supernumerary tooth fails to evolve from the bell stage. Primordial cysts will sometimes expand the lingual cortical plate of the mandible, a feature that distinguishes them from other odontogenic cysts.

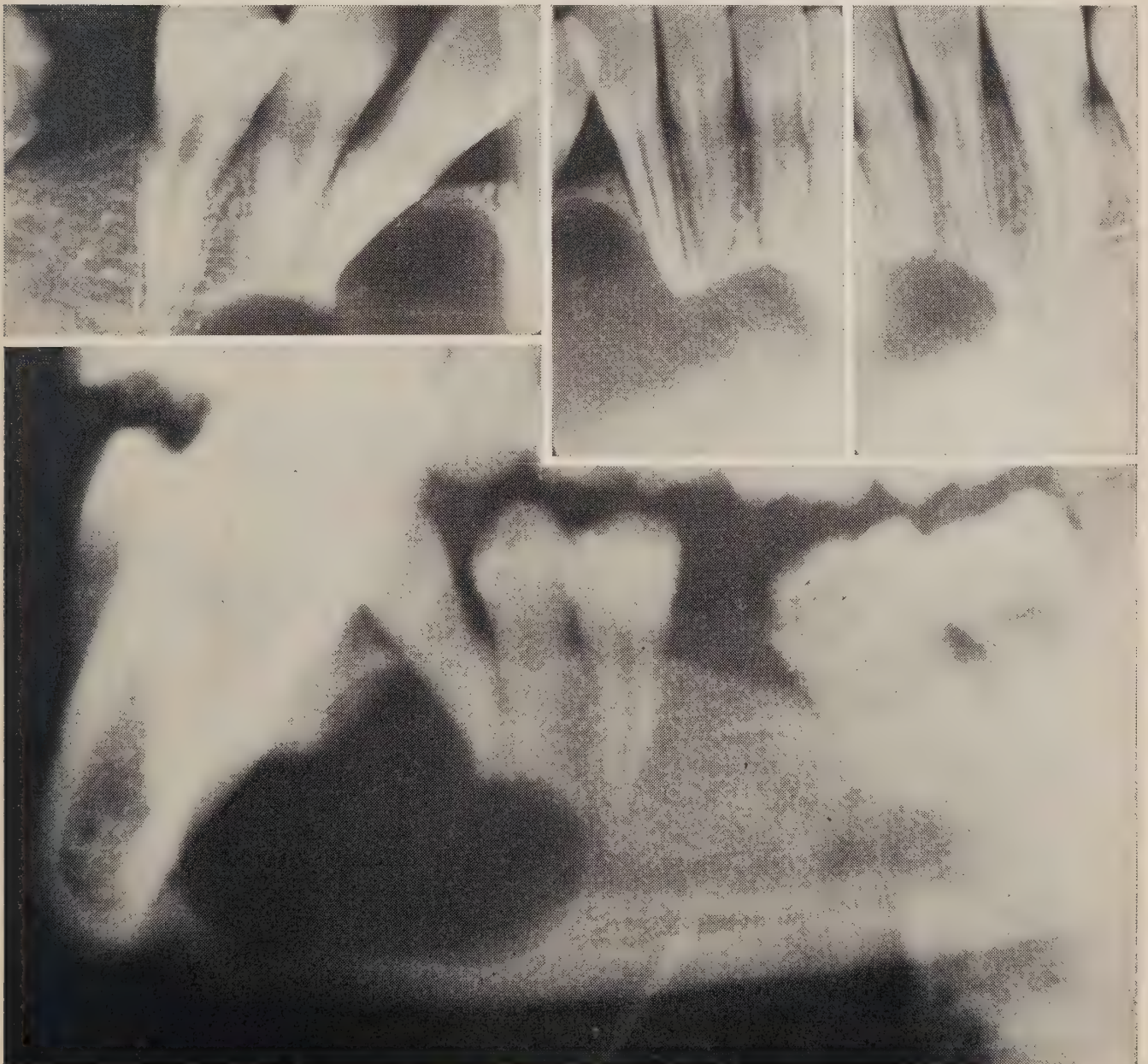
Radiographic Appearance. — Many primordial cysts are first discovered during routine dental radiographic examination. They appear as distinct radiolucent areas in the jaws with a well defined cortical outline unless, as with other odontogenic cysts, they have become secondarily infected. Pseudoloculation is sometimes observed. This suggests that cystic expansion is easier within the medullary bone, the various cortical plates limiting even expansion of the lesion. Teeth involved in the expansion may be displaced. The commonest site for a primordial cyst to develop is at the end of the mandibular tooth band, distal to the third molar tooth. In this position it expands more easily into the ramus of the mandible

where it may present a multilocular appearance.

Periodontic and dentigerous cysts do not usually expand the lingual plate of the mandible. This is not the case with primordial cysts which may, if they also show evidence of loculation, simulate an ameloblastoma.

Pathology. — Macroscopically, the lining of a primordial cyst is thinner and more fragile than that of the majority of odontogenic cysts, but this typical finding may be altered by infection. Although Bernier⁶ and Thoma and Goldman¹² find little evidence of histodifferentiation between primordial and dentigerous cysts, this view is not universally

FIGURE 2 Intra-oral and lateral oblique radiographs showing extent of lesion.



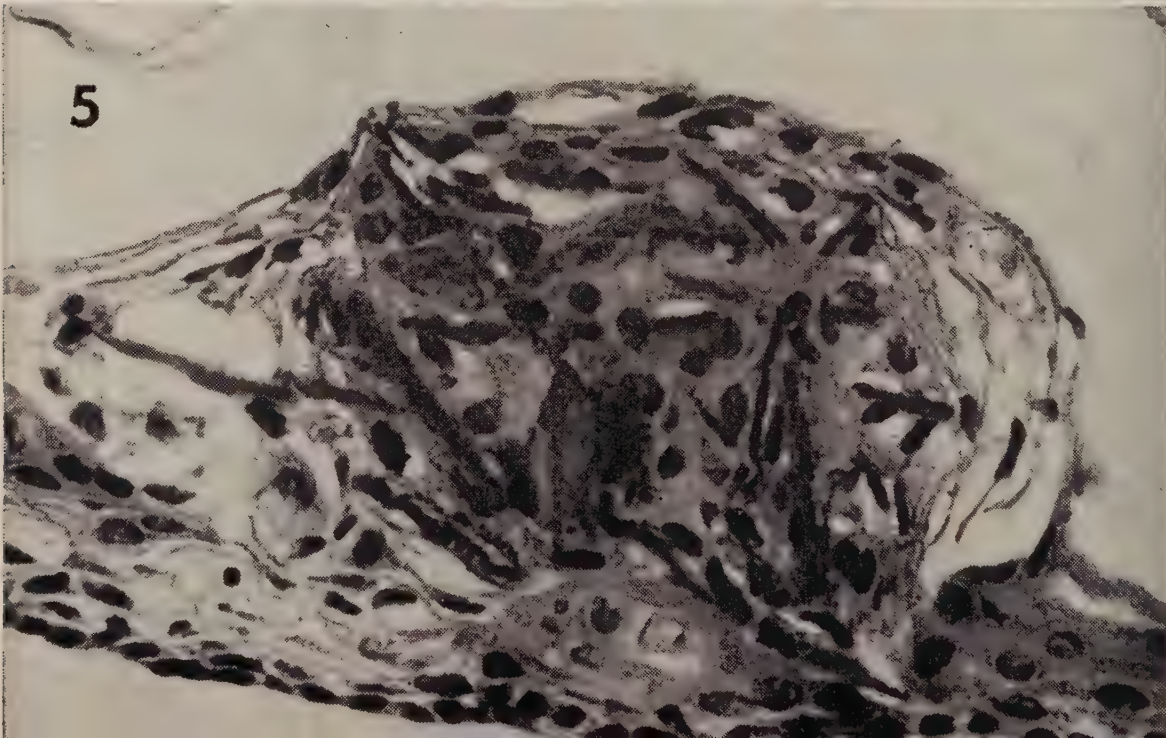
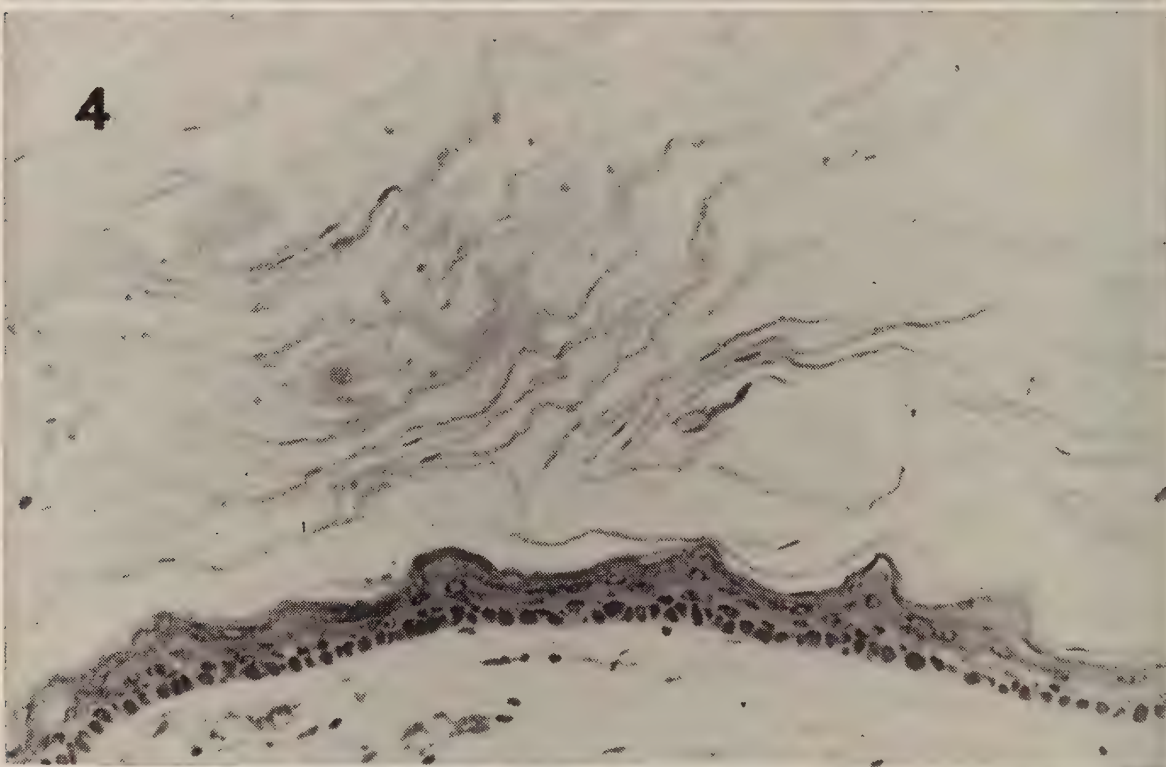
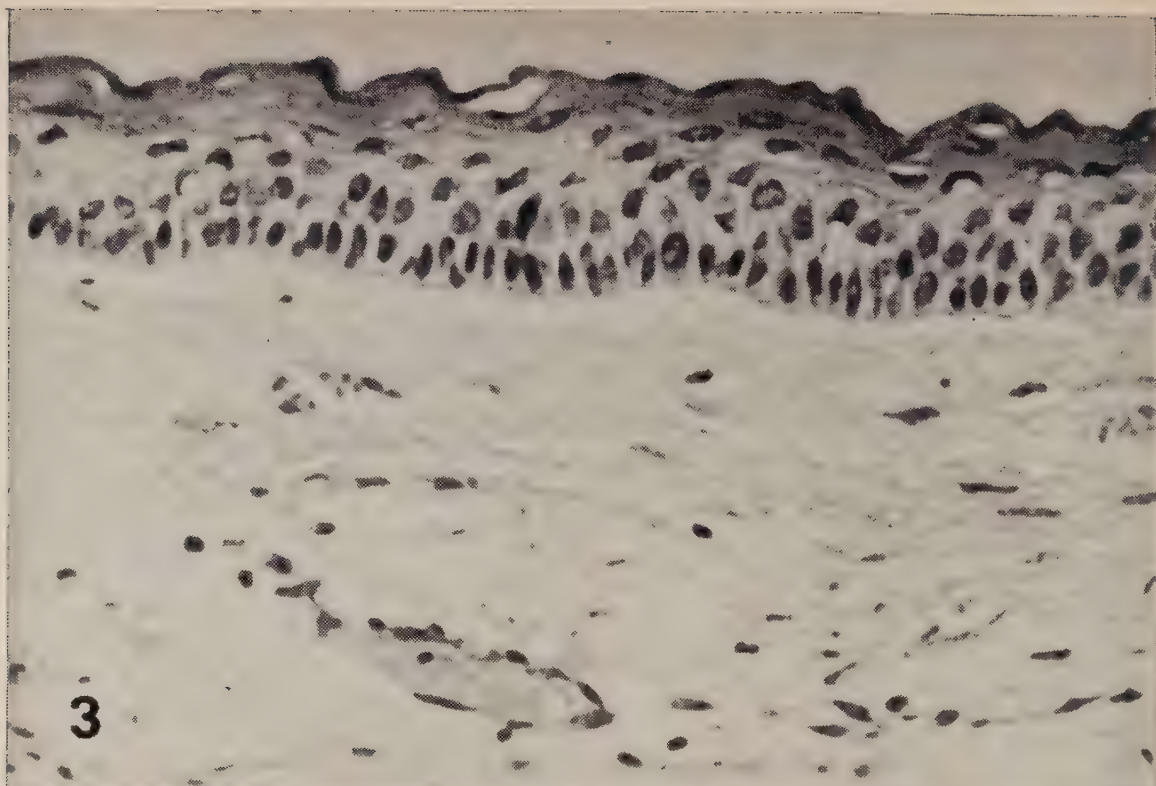


FIGURE 3 The regular basal cells without rete pegs. There is an absence of inflammatory cells. Basal cell nuclei show pyknosis and vesiculation. H. E. x 120.

FIGURE 4 Keratin shed into the cyst cavity. H. E. x 60.

FIGURE 5 Basophilic hyaline bodies (hairpin bodies) within the epithelial lining. H. E. x 150.

held. Shear has made a very detailed study of 22 primordial cysts and lists four salient features: (1) a regular, thin lining of stratified squamous epithelium without rete pegs; (2) a keratinized or parakeratinized layer on the surface epithelium with keratin being frequently found within the cyst cavity; (3) an absence of inflammatory cells; and (4) a columnar basal cell layer with either pyknotic or vesicular nuclei. These four histological features confirm a diagnosis.

Treatment. — Primordial cysts may be treated as any other odontogenic cyst. The great majority are enucleated and they seldom recur. If the lesion is multilocular, however, follow-up radiographs are advisable.

CASE REPORT

The following case illustrates many of the points discussed. A 19 year old Caucasian girl complained of bleeding gums and requested dental treatment. Routine full-mouth radiographs revealed a large radiolucent area in the right mandible. On examination there was no evidence of swelling in the labial sulcus but the alveolar process was expanded lingually from the lower right incisor to the first bicuspid region (Figure 1). Further radiographs showed that the radiolucent area extended to the lower border of the mandible from the apex of the lower right second bicuspid to the lower left lateral incisor (Figure 2). The outline of the lesion was lobulated with one extension expanding the interradicular area between the lower right cuspid and lateral incisor. The root of the cuspid was

displaced distally and the crown was tilted mesially while the pulp chamber and root canal showed evidence of calcification. There was no history of a blow in the right cuspid region and the crown of the tooth had not lost its natural lustre. Although the reaction to electrical stimulation of the cuspid was negative, this did not signify that the tooth was infected.

The differential diagnosis indicated that the lesion was a primordial cyst or possibly an apical cyst. The lingual expansion of the alveolar process was suggestive of a cystic ameloblastoma. An exploratory operation was advised to obtain biopsy material or, if the clinical appearance of the lesion suggested a simple odontogenic cyst, to continue and enucleate the cyst. Using a 2 per cent lidocaine right inferior dental nerve block and infiltration in the left incisor region, a mucoperiosteal flap was reflected from the right second bicuspid to the left central incisor. The labial alveolar plate being firm, a chisel was used to remove a segment of bone, opening a window that revealed a very thin dark blue lining. The lining was quite fragile and ruptured showing dark brown, cheesy and semi-fluid contents with a cholesterol sheen. This new evidence now made the clinical diagnosis of an odontogenic cyst almost certain. Using rongeurs, more bone was then removed, the thin cyst lining enucleated and the flap packed into the floor of the bony cavity with ½ inch ribbon gauze and Whitehead's varnish.

Microscopic examination of the specimen disclosed a uniform stratified squamous epithelium without rete pegs. Pyknotic and vesicular nuclei were seen in the basal cells. No inflammatory cells were present (Figure 3). Flattened keratinized squamous cells were being shed into the cyst cavity (Figure 4). Occasional basophilic hyaline bodies¹³ were also evident within the epithelial lining (Figure 5).

DISCUSSION

The apparent rarity of primordial cysts has been challenged by the statistical evidence presented in Table 1. This shows

TABLE 1 Incidence of primordial cysts recorded in three surveys of odontogenic cysts.

Author	Odontogenic cysts N	Primordial cysts	
		N	% of odontogenic cysts
Sonesson, 1950	263	15	5.7
Fickling, 1965	301	10	3.3
Killey and Kay, 1966	404	12	3.0

that from 3.0 to 5.7 per cent of odontogenic cysts may be primordial. Using the histological criteria described by Shear, their diagnosis is now more certain. The case report underlines the importance of differentiating these lesions from the ameloblastomata. Suspicion was aroused in this instance by the expansion of the lingual aspect of the alveolar process and the multilocular radiographic appearance. From the standpoint of treatment planning it is vitally important to distinguish between a simple odontogenic cyst and an ameloblastoma. Any questionable lesion should be subjected to biopsy if a cystic ameloblastoma is suspected and a radical surgical procedure contemplated.

The position of the dental anlage in the permanent dentition offers a possible explanation for the medial expansion of the mandibular alveolar process by ameloblastomas and primordial cysts. Both lesions develop during epithelial histodifferentiation of amelogenic epithelium and at this stage the tooth bud forms on the medial aspect of the deciduous tooth.

SUMMARY

A case report of a primordial cyst is presented together with a discussion of

the incidence, histogenesis, differential diagnosis and histopathology of this lesion.

*Formerly associate professor of oral biology and head of the Section of Oral Surgery, University of Manitoba, Winnipeg. Now professor and chairman, Department of Oral Surgery, University of Western Ontario, London, Ontario.

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Faculty of Dentistry,
University of Western Ontario

The Pontostructor paralleling instrument in restorative dentistry

The author describes three modifications of a paralleling device for making precision intracoronar retainers. These modifications allow the instrument to be used for achieving parallel pin retention and the bevels necessary in other parts of multiple gold castings.

L'auteur décrit trois modifications apportées à un dispositif d'alignement parallèle pour l'exécution d'attaches intracoronaires de précision. Ces modifications permettent d'utiliser l'instrument pour obtenir le parallélisme des pivots et des parois lors de la construction de restaurations complexes.

In 1941 Karlström¹ introduced an instrument for paralleling pinholes in crowns, inlays and fixed bridge restorations. This device, the Pontostructor (Jelenko, New Rochelle, NY),² is supplied in two basic types, A and B. The type B model can be converted into a further type C model.

TYPE A PONTOSTRUCTOR

This model (Figures 1-6) is used for the construction of fixed bridges or where several crowns or inlays are prepared at the same appointment. It consists of three members: a spring clamp, a threaded pivot pin (available in two sizes: 28 mm. and 33 mm.), and a link arm assembly. The base of the spring clamp is attached by a cold-curing acrylic resin baseplate to the diagnostic cast. The top of the spring clamp has 25 round holes arranged in five rows while the wide corrugated base has nine square holes.

One end of the threaded pivot pin is round while the opposite end is square. These ends fit into corresponding holes of the spring clamp. There are two threads per millimetre so that one com-

plete turn of the link arm raises or lowers the link area assembly by 0.5 mm.

The link arm consists of two movable jointed parts. The outer link carries a guiding sleeve which is used to hold a Spirko twist drill (Jelenko). Alternatively, a mandril peg with a split chuck may be fitted to carry a diamond disc for the reduction of proximal surfaces. The knurled nut on the opposite end of the link arm fits onto the threaded pivot pin.

TYPE B PONTOSTRUCTOR

This model (Figures 7 and 8) can be used for patients with a limited interocclusal distance. It can also be used for quickly checking the parallelism of multiple preparations because it can be easily mounted in modelling compound directly in the patient's mouth. It also consists of three members: a V-shaped corrugated base, a threaded pivot pin (supplied in two sizes: 26 mm. and 33 mm.) attached to the base by a universal joint, and a link arm assembly. The universal joint is mounted at the forward part of the base. Here there are three gripping lugs

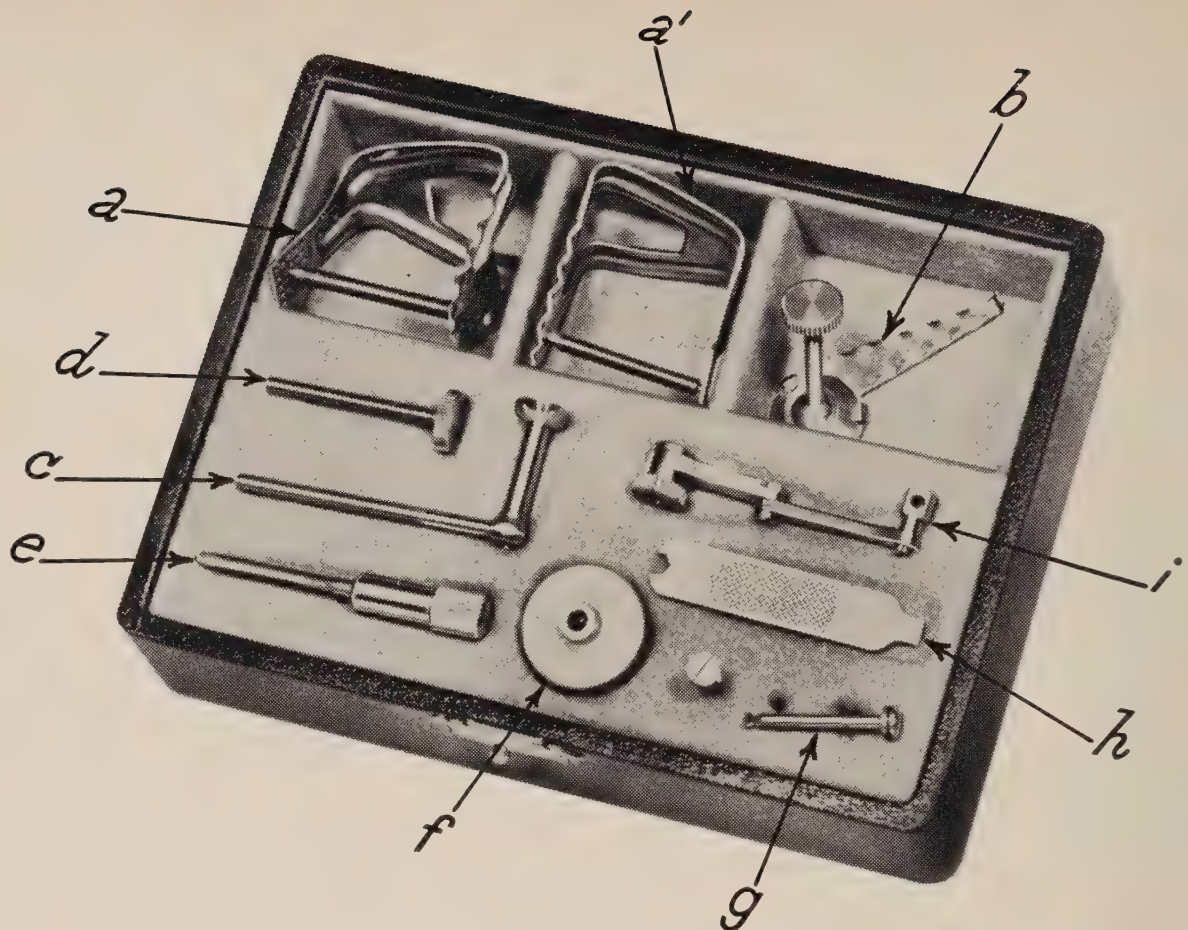


FIGURE 1 The Pontostructor kit comprises (a) the type A large spring clamp (33 mm.) without the link arm; (a') the type A small (28 mm.) spring clamp without the link arm; (b) the type B Pontostructor without the link arm; (c) the right angle and threaded pivot pin in the type B for conversion to type C; (d) the type B pivot pin; (e) the tap; (f) the die used to clean threads on screws and pivot pins; (g) the special Inka mandrils used to hold diamond discs for making proximal cuts; (h) the screwdriver wrench used to adjust the link arm assembly; and (i) the link arm with the mandril peg. (Courtade, G. L., Sanell, Carl and Mann, A. W. J. *Prosth. Dent.* 15:691, 1965.)

that retain a circular metal ring resembling a bowl with the bottom cut out. Slightly projecting from the bowl is a dome-shaped metal part with a hole in the centre. The threaded pivot pin, which can be set at any desired axis in a range of 50 degrees, is easily disengaged from the base by a simple turn of the hand. The pivot pin, which carries the link arm assembly, has a knurled turning knob at its upper end. It rotates clockwise through the half dome until its lower end touches a raised knob located at the centre of the three gripping lugs on the corrugated base. By turning the knurled nut, the half dome is raised and the bowl is lifted against the gripping lugs. The pivot pin is thereby fixed in any desired axis. To attach the link arm, the bowl-half dome-pivot pin assembly is removed from the V-shaped base and disassembled.

The pivot pin is then rotated through the knurled end of the link arm assembly until it reaches a midway position. The combined assembly is then remounted on the base.

TYPE C PONTOSTRUCTOR

The type B Pontostructor (Figure 9) can be converted to a type C model by means of a part called the 'right angle.' This facilitates the drilling of parallel pin canals at right angles to the long axis of the teeth—especially for anterior fixed splints and labial and buccal gold inlays. The right angle consists of a short vertical tubular section terminating in a fixed half dome. A longer horizontal threaded rod extends at right angles from the top

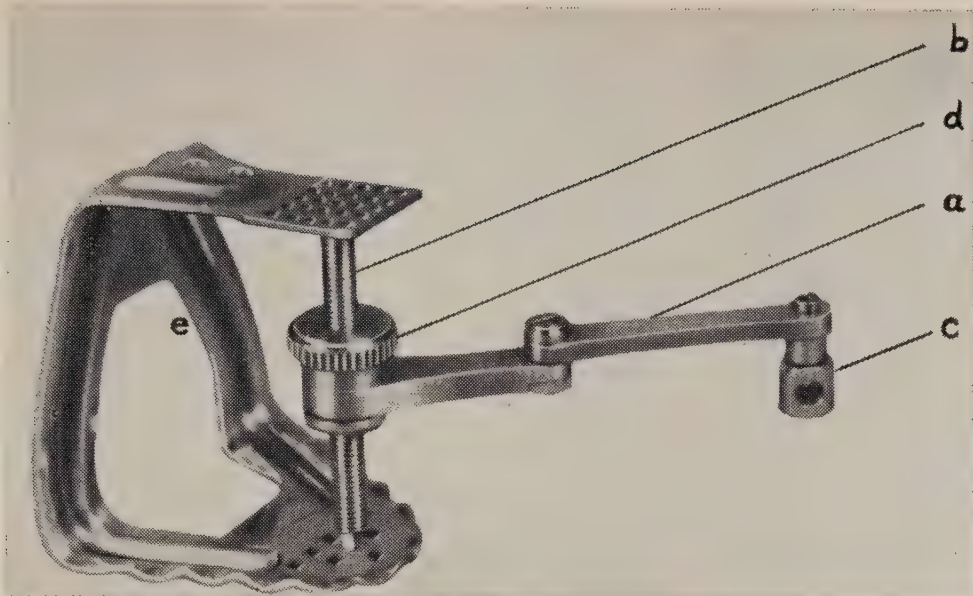


FIGURE 2 Type A Pontostructor with the link arm in place. (a) link arm, (b) threaded pivot pin, (c) mandril peg with a split chuck, (d) knurled nut, and (e) spring clamp. For proximal slices, the upper end of the pivot pin is moved diagonally to the nearest hole, thereby tilting the pivot pin at an angle of $3\frac{1}{2}$ degrees and producing the same inclination in the slice. (Courtade, G. L., Sanell, Carl and Mann, A. W. J. Prosth. Dent. 15:691, 1965.)

of the tubular section. To convert a type B to a type C Pontostructor, the type B model is reduced to its components. The bowl is slipped over the horizontal rod of the right angle and passed down over the vertical tubular section until it contacts the fixed half dome. Next, the knurled nut is inserted into the top of the tubular section until it is flush with the base of the fixed half dome. This assembly is now mounted inside the three gripping lugs on the V-shaped base. By tightening the knurled nut, the horizontal arm may be fixed in any desired position for a planned horizontal approach. The link arm is then threaded onto the horizontal arm.

SPIRKO DRILL

The Spirko drill (Figure 10) is designed to unload lateral forces that might strain the guiding system when an ordinary drill with a cylindrical shaft is used. This is achieved by introducing an articulated connection between the cylindrical and the tapered portions of the shank. The tapered portion engages only the latch of the contra-angle and is free from contact with the rest of the bur

sleeve. This permits the drill to wobble slightly without binding in the bur sleeve. The drill itself is only free to move in an axial direction. The cylindrical part of the shank fits into the guiding sleeve of the Pontostructor link arm. Spirko drills are supplied in diameters of 0.6, 0.7 and 0.8 mm., and in lengths of 21, 23.5, 28 and 31 mm. The 21 and 23.5 mm. lengths are used in a miniature head contra-angle whereas the longer drills require a standard sized contra-angle.

Very low rotational speeds (500-1,000 rpm) are used in drilling with Spirko drills. (A straight steel pin should be placed in each pinhole immediately after drilling to check its alignment.) Pins, paper points and other protective devices sealed into a canal between treatments are easily removed because the drill head will seek out the canal as the path of least resistance.

IMPRESSIONS

Hydrocolloid or mercaptan (thiokol) rubber base material can be used for making impressions. Plastic pins (0.59, 0.69 or 0.79 mm.) are inserted into the pinholes before making the impression.



FIGURE 3 Type A Pontostructor held in position by a maxillary clamp while making a preparation in the upper jaw.

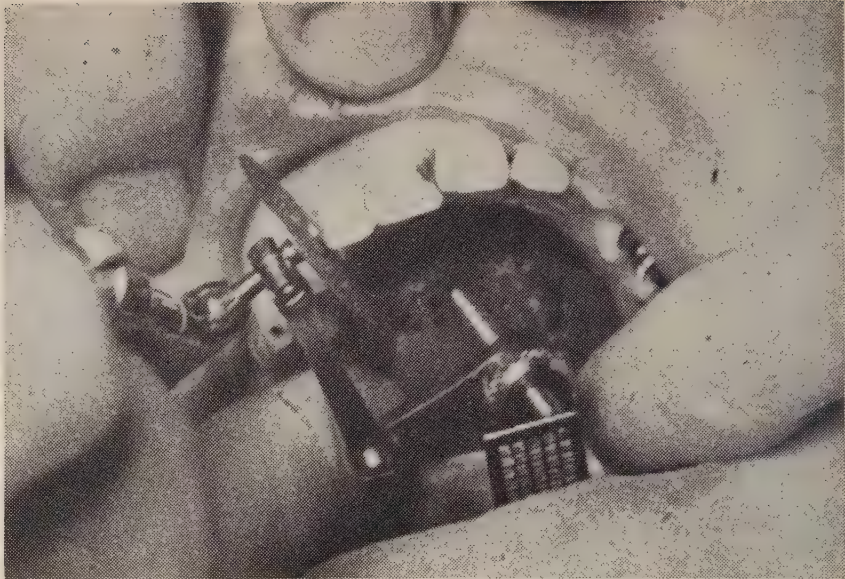
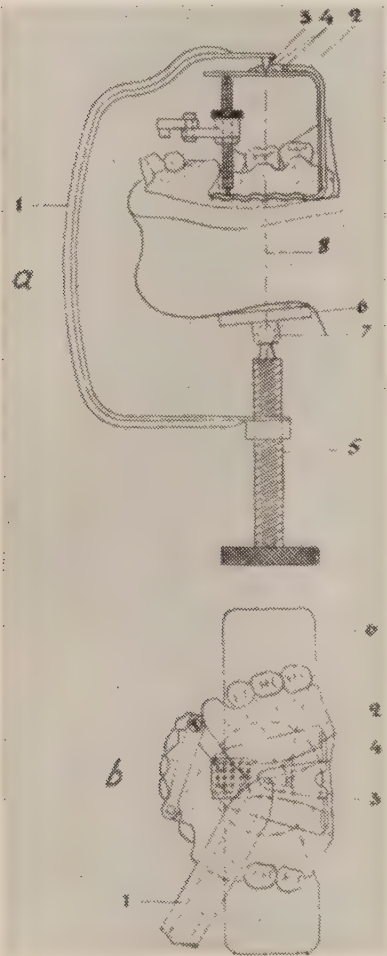


FIGURE 4 Type A Pontostructor mounted on patient's upper jaw while making a preparation and held in position by finger pressure.

FIGURE 5 Schematic representation of type A Pontostructor mounted on lower jaw and fixed in position by a mandibular clamp.



These pins are withdrawn with the impression which is subsequently cast in dental stone.

DISCUSSION

Paralleling instruments facilitate the construction of intracoronol retainers. Such retainers are a suitable alternative for full coverage restorations which may needlessly sacrifice intact tooth tissue and promote gingival irritation. Parallel pin

FIGURE 6 Type A Pontostructor mounted on a cast of the upper jaw.



FIGURE 7 Type B Pontostructor disassembled without the link arm. A, the V-shaped base; B, pivot pin; C, one of the gripping lugs that maintains the bowl (D) in position; and E, the half dome.

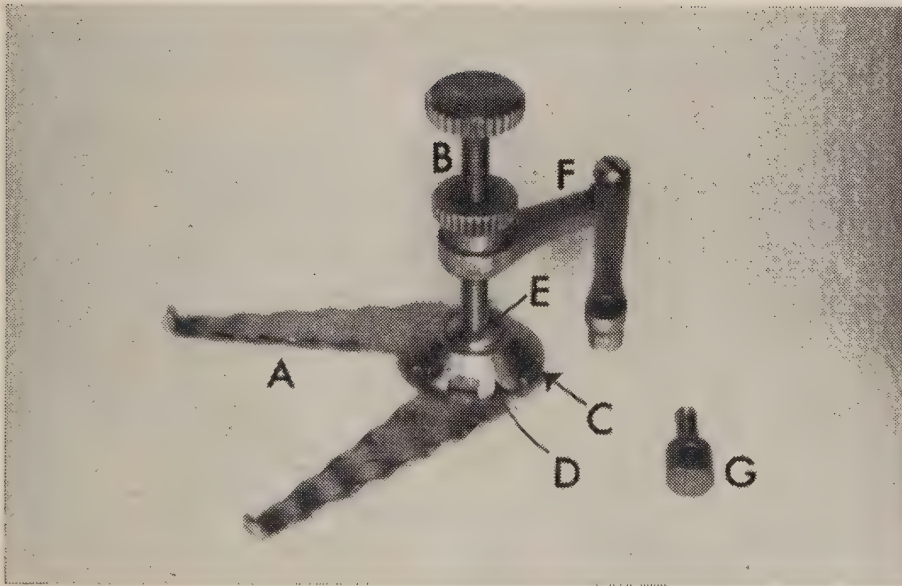
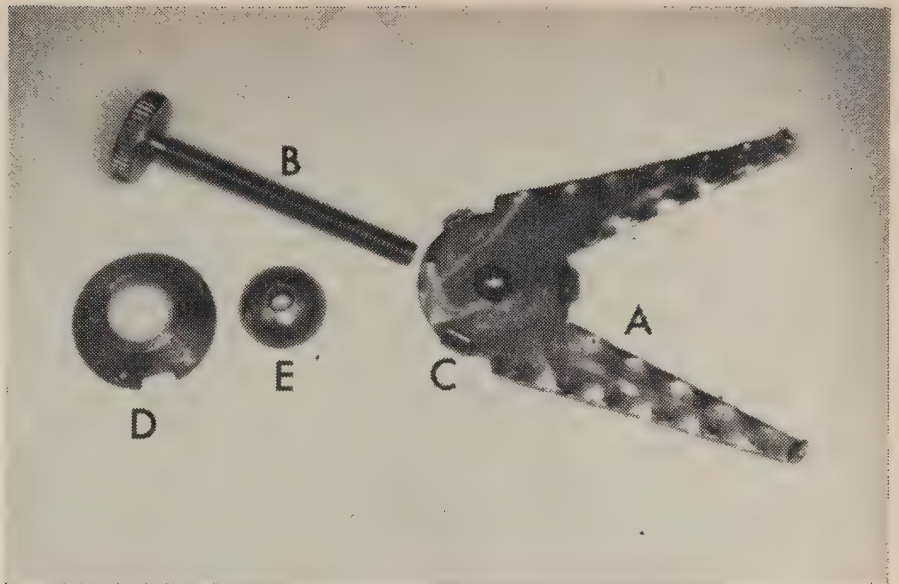


FIGURE 8 Type B Pontostructor fully assembled with the link arm threaded to the centre of the pivot pin. A, the V-shaped base; B, pivot pin; C, a gripping lug holding the bottom of the bowl (D); E, half dome; F, link arm assembly; and G, mandril peg shown removed from the guiding sleeve.

anchorage offers maximal retention with minimal removal of tooth structure. One outstanding feature of intracoronal attachment is the retention achieved by means of very short parallel pins (2.5-3 mm. long). Another attribute is the easier marginal adaptation of intracoronal retainers. They may be used in slanting or badly mutilated teeth without having to anchor them in the root canal. They may also be used in teeth with short clinical crowns and teeth with necks exposed by gingival recession — situations which are unsuitable for full crowns.

One decided advantage of the Pontostructor over other paralleling instruments is the guidance afforded for the prevention of undercuts in the proximal parts of the preparation. Proximal slices

can be inclined $3\frac{1}{2}$ degrees from the vertical. This conserves tooth structure, reduces the display of gold, increases retention, and enlarges the occlusal table in a mesiodistal direction. Pins can then be located at the corners of the occlusal surface, away from the pulp, but still within sound dentine.

Other paralleling devices have been offered to the dental profession at various times. None of these,⁴⁻⁶ in my opinion, provides the versatility achieved with the Pontostructor and Spirko drills.

CONCLUSION

The Pontostructor paralleling instrument is described. This device is super-

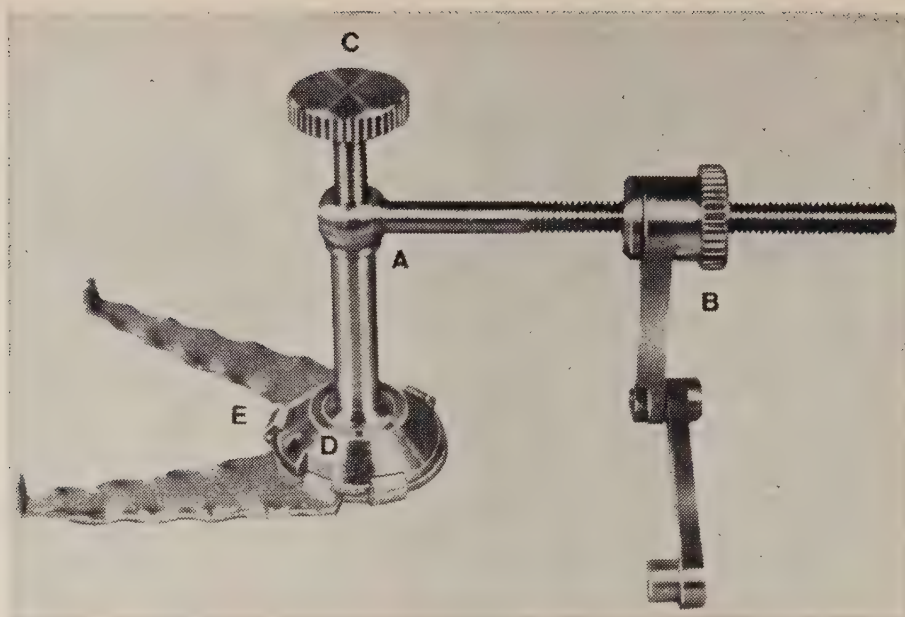


FIGURE 9 Type C Pontostructor. A, tubular section of the right angle, with its lower part shaped as a half dome; B, link arm threaded to the right angle; C, a type B pivot pin used to lock the assembly; D, bowl; and E, the V-shaped support. (Courtade, G. L., Sanell, Carl and Mann, A. W. J. Prosth. Dent. 15:691, 1965.)

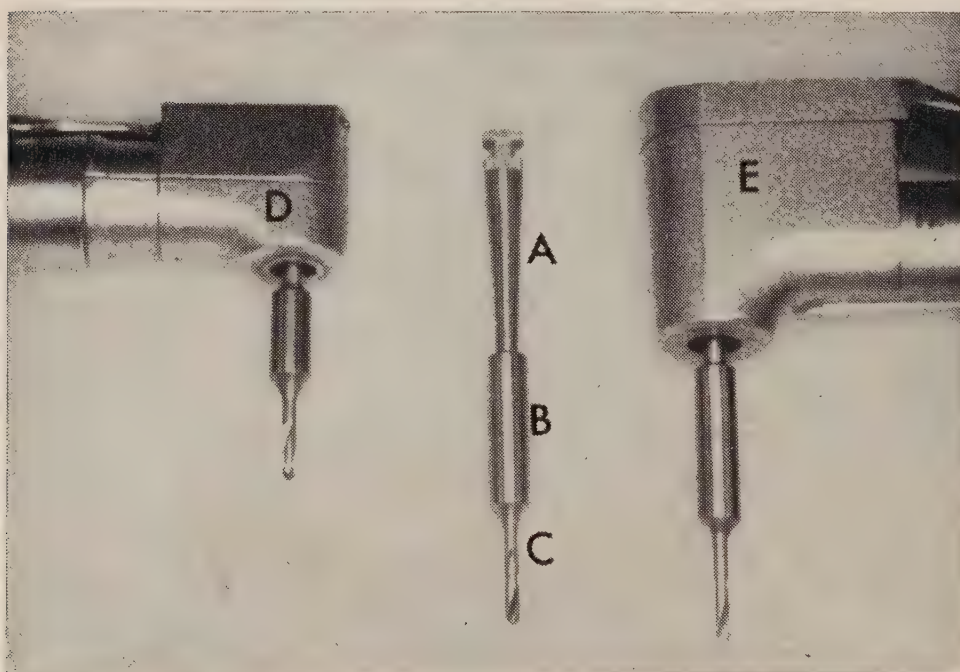


FIGURE 10 Spirko drills and contra-angles. A, tapered shank of drill; B, cylindrical shank of drill; C, twist drill section; D, Spirko drill mounted in a short shank contra-angle; and E, Spirko drill mounted in a standard contra-angle.

ior to other instruments intended to achieve intracoronal parallel pin retention and the bevels necessary in other parts of multiple gold castings.

1. Karlström, Sam. Broframställning med tillhjälp av pontostructor. (Bridge construction by means of the Pontostructor.) Svensk Tandläk. T. 5:355, 1941.
2. Idem. The Pontostructor method for the construction of fixed bridges, crowns and inlays. Stockholm, Nordiska Bokhandelns, 1955.

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5. Karlström, Sam. Ett kritiskt skärskadande av det av Ake Parmlid lanserade instrumentet för parallellborrning inom brotekniken. Svensk Tandläk. T. 59:11, 1966.
6. Parmlid, Ake. Svar på Kollega Karlströms diskussionsinlägg. Svensk Tandläk. T. 59:21, 1966.

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Some aspects of psychology applied to dentistry

The author reviews the psychodynamics of emotional stress and apprehension in patients and practitioners. He shows how patients can establish better emotional rapport with an experienced, trusted dentist who displays a warm, understanding personality than with a practitioner who places excessive reliance on anaesthetics, tranquilizers and other premedicating agents.

L'auteur considère la psychodynamique de la tension émotionnelle et de l'appréhension chez les patients et les dentistes traitants. Il démontre comment les patients peuvent établir un meilleur rapport émotionnel avec un dentiste expérimenté, en qui ils ont confiance et qui fait montre de sympathie et de compréhension, qu'avec un praticien qui donne une importance excessive aux anesthésiques, tranquillisants et autres médicaments pré-opératoires.

All dentists and physicians experience frustration in everyday practice. They respond by developing protective mechanisms and psychological armour. The professional manner is a defensive mechanism which masks personal insecurity, apprehension and prejudice. It shields the doctor from patients he does not understand. But the best defence of all is to recognize our own limitations, to realize that we harbour guilt feelings toward some patients which in turn feed our unconscious hostility toward them. The rec-

ognition of our own limitations and the ability to live with them is better than any tranquilizer.

Negative feelings expressed by a patient toward his doctor often result from a previously excessive attachment. This resembles the well-known 'adolescent crush.' We should be on our guard in dealing with exceptionally devoted patients, for such devotion may be replaced rather suddenly by resentment and hostility. This abrupt change in the patient's emotional climate may freeze the doctor

unexpectedly and painfully.

Very possessive patients demand an excessive amount of the dentist's time and attention. Much effort and considerable experience are required to achieve a relationship which neither rejects nor submits to these patients.

Adolescents are often antagonistic to their parents. This may provoke severe guilt feelings and hostility which is often directed at the dentist or physician. Such displacement, if it is severe and prolonged, occasionally brings about immediate improvement in the relationships at home.

Both parties to the doctor-patient relationship have certain basic needs. The patient expects help and recognition. The doctor often craves to be needed, loved and respected. He yearns for recognition and appreciation of his efforts. He is pleased when his patient expresses a gratifying response. But we must remember that the sick patient is often irritable, aggressive, selfish and demanding. He acts like a hurt child and, like all hurt children, tends to hurt others. He therefore deserves extra warmth, support and guidance until the acute symptoms subside.

A doctor cannot afford the luxury of domestic strife. Such strife hinders any meaningful psychological communication with patients. A tense and anxious doctor cannot mask his own insecurity. He may hurt patients with his hidden anger. He will misjudge animosity in others and will not let his patients ventilate their own hostility.

Ineptitude, lack of self-confidence and disorganized work habits give rise to errors, failures and professional frustration. Inadequate knowledge of one's own personality may additionally disturb the doctor-patient relationship.

Conversely, the well adjusted doctor possesses several desirable attributes. He can accept his own errors with relative equanimity. He can talk about his failures. He can ask for advice. He can let the patient talk about other good dentists. He can talk to the patient about his fees without embarrassment or hostility. He can listen to the patient's own ideas about what is wrong in his own mouth and how it should be treated. This doc-

tor can easily establish an emotional rapport which will save valuable treatment time.

THE DOCTOR

The normal personality rests on four pillars:

1. Absence of mental or physical symptoms.

2. Ability to make decisions easily and quickly and to abide by them. It is better to be decisive. A wrong decision can be avoided at a subsequent occasion. Indecisiveness, on the other hand, stems from conflicts that arrest progress and usually result in fatigue.

3. Satisfactory work capacity without the need for frequent change or holidays. A healthy individual maintains optimum efficiency during an eight-hour work day. Lack of this ability may reflect maladjustment. The doctor who overworks is just as maladjusted as the one who cannot put in a good day's work. The doctor who overworks does so because he can cope with professional tensions better than with his own tensions which manifest when he ceases work.

4. Ability to perceive and adjust to people's emotional needs. Narcissism (self-love) impairs the individual's ability to see the world in proper perspective. Correction of this defect is a major procedure, but much can be done to ameliorate its effects.

Emotional maturity is an essential ingredient of the foregoing attributes. This maturity is difficult to achieve in our present culture. It requires that the personality make-up be so constituted as to make the doctor emotionally independent of other authority figures such as parents, spouse or colleagues, and even patients. The emotionally mature individual is relatively free from feelings of inferiority, egotism and excessive competitiveness. His conscience is sufficiently adult to aid rather than hinder further development. Mature people use their aggressiveness productively instead of turning it on themselves or others. They can love others besides themselves and can

adjust to other people's needs. They are able to give as well as receive from others. Being realists, they are flexible and can adjust to new situations without difficulty.

We must also remember that the doctor is susceptible to and often possesses the character traits and behaviour that he sees in his patients. But, because of the nature of the situation, the doctor may not see himself in a true light. He is therefore defensive when exposed and difficult to treat when sick.

THE PATIENT

Some dentists acknowledge that emotional experiences can provoke pathological changes and vice versa. But they prefer to dissect psychosomatic reactions into tangible components which are always somatic. This view has some advantages. It can tell us how hormones work, how enzymes affect these functions and how biochemical changes occur. These, however, are only secondary effects. In the last analysis it is from the mind that emotion-induced somatic changes originate. Consequently, the kindly understanding dentist can usually do more for his patients than a battery of complicated technical procedures.

We must be ever sensitive to the patient's real needs. For example, a patient may retaliate against his dentist for some real or fancied injury by complaining that his dentures do not fit or that the occlusion is uncomfortable. Oral pathosis in another patient may rapidly subside after a visit to a second dentist. Yet this may simply reflect a manoeuvre to disparage the previous dentist, to show that he did not 'love' the patient enough. This child-like dependence, which is integral to the patient-doctor relationship, represents a normal regression to childish behaviour during illness.

PSYCHOLOGICAL THEORY

Some psychiatrists prefer biochemical rather than psychological explanations

for human behaviour. Yet it is difficult to believe that chemotherapy can ever replace warm human relationships or the richness of love and affection and the security they bring.

The dentist has a special interest in psychosomatic disturbances related to the mouth. Examples abound. I have personally witnessed several cases of arrestment of rampant caries by psychotherapy. Changes in the innervation of the orbicularis oris due to chronic emotional tension may influence the position, retention and stability of dentures. A neurotic desire for tooth extraction to expiate guilt feelings, fingernail or pencil biting, excessive chewing, grinding and clenching of teeth, and perverse craving for acid foods — all of these may contribute to disturbances in the mouth. Burning tongue and displaced psychological conflicts manifesting as taste or smell aberrations are often of dental concern.

Neurotic eating habits in patients with oral pathosis have not received adequate attention from dentists. Very early in life everyone learns to associate food with specific emotional meanings. Foods acquire emotional values that are quite distinct from their hunger satisfying capacity. These values are represented by gustatory pleasure foods, pleasure associated foods, security foods, reward foods, texture foods and fetish foods. Chocolate, hot dogs, candy and ice cream are regarded as reward foods. Parental insistence on the consumption of spinach, carrots and milk often provokes resistance on the part of the child. This attitude, when retained in adulthood, is symbolic of the rejection of parental authority. Conversely, forbidden foods usually have a great appeal for the child. This is particularly true when he is denied coffee, tea, beer and cocktails until he 'grows up.' Subsequent overindulgence in these foods sometimes reflects a desire to compensate for earlier deprivation and to assert adulthood. The choice and consumption of foods thus become psychologically structured and conditioned responses. The ingestion of a specific food during times of stress may provide emotional support that far outweighs the

consequences of food-induced mouth pathosis.

Two psychological tenets have direct application to the dentist. One is that prolonged and often unrecognized emotional disturbance can produce an organic disturbance in the mouth. The emotional cause may be suppressed before the organic change is well defined. If this disturbance is not yet fixed, an attempt should be made to reverse the process. The second tenet concerns what can be done to reduce the anxiety and fear that some patients suffer when they are exposed to dental procedures.

Emotion-Induced Disturbances. — Bruxism is representative of an emotion-induced organic disturbance which manifests by its destructive effect on the teeth. The arrestment of bruxism may induce the release of basic aggressive and hostile feelings through channels outside of the mouth. Such 'malocclusion' of the personality can be a much more serious disorder than a dental malocclusion.

The patient's accustomed way of handling emotional problems cannot be changed abruptly. The forcible arrestment of thumbsucking may provoke a further regression to bed-wetting. A better though a more difficult way of handling thumbsucking is to give the patient more attention and affection, thereby reducing his anxiety and tension. Frustration and prohibition will never satisfy a yearning for solace and comfort and the desire to satisfy oral craving.

Another example of emotion-induced oral pathosis is reflected by chemical alteration of salivary secretion and changes in vascular calibre within periodontic tissues which may encourage bacterial activity. Chronic emotional tension interferes with salivary secretion. Acute emotional tension resulting in the suppression of salivary flow is best illustrated by the pitcher of water placed before the apprehensive lecturer. Mental turmoil diminishes the calcium content of saliva, while homeostasis tends to increase it. Excited or tense individuals have an alkaline saliva whereas stable persons have more acid saliva. Degenerative changes in the supporting structures of the teeth

are often caused by emotional disturbance which interferes with appetite, normal eating habits, sleep, mouth hygiene, digestion and even love itself. The emotional causes in these cases are neither easily diagnosed nor lightly treated. Gingival inflammation and pain are commonly observed in psychiatric practice. Regression of this lesion often parallels improvement in the emotional status.

Reduction of Anxiety.—This topic is best considered in terms of the psychodynamics of apprehension, anxiety, fear and pain; premedication; and hypnosis.

The way we handle pain, fear and anxiety depends on our previous experiences, our personality make-up and the cultural environment in which we live. Anxiety symptoms are alleviated when stresses are relieved. Overt anxiety ranges from mild uneasiness and worry to paralysing panic. Anxiety may not manifest overtly if it is suppressed by countermeasures. Somatic changes in patients who experience this kind of anxiety are much more severe, inducing accelerated metabolism. Average doses of premedicating and anaesthetic agents are totally inadequate for these patients. The severity of pain perception is contingent on expectancy and can readily be influenced by induced changes in attitude. Every psychic and somatic manifestation of anxiety makes any dental procedure or the induction and maintenance of anaesthesia more difficult and at times more dangerous.

Many patients require special consideration and premedication for the more common dental procedures. The proportion fluctuates in relation to the dentist's own personality. When this personality is removed from the situation, I find that 15-18 per cent of all dental patients require this type of support. These figures are really academic, since some dentists routinely use premedication and suggestion for nearly all their patients, while others almost never use these aids. But these facts underline the role of the dentist's personality.

Tranquillizers reduce anxiety, nervous and muscular tension and acuity of awareness. They are mildly depressant

and induce muscular relaxation. They act on the most primitive region of the brain, the brain stem, which controls the emotions and automatic functions.

Tranquillizers do not always act 'as advertised.' This is because certain functional activities may influence the patient's condition. If he equates drug-induced muscular relaxation with fear of passivity and vulnerability, he may fight against the tranquillizer and become even more tense. Of importance is how the patient feels about the physical effect of the drug. If it makes him feel better physically, he will feel better psychologically; but if it makes him feel worse, as through some side effects, he may become more tense. Some anxiety-ridden patients have mood swings ranging from excitement to depression. While tranquillizers calm the excitable stage, they sometimes accentuate despair with occasional tragic results.

Some patients fear increased passivity. In these individuals tranquillizers tend to suppress activity as a motor outlet—the 'fight or flight' response. Thus, patients who express doubt about their masculinity through conflicts over their sexual, social and intellectual potency use activity in one or all of these spheres for reassurance. They equate activity with masculinity and passivity with femininity. The chemical removal of 'masculine' activity when used as a major defence may be interpreted as a threat and result in substitution of less adequately integrated defences with increased anxiety.

Occasional paranoid reactions and enhanced anxiety, depression or agitation are seemingly independent of any specific drug action since these reactions may even occur after the induction of hypnosis. These conditions are more likely a manifestation of the patient's response to the removal of one of his important defences, such as activity. Whether a depression or a paranoid reaction is produced depends on the interplay of many forces and varies with each particular person.

An unfavourable reaction to tranquillizers or premedicating agents usually occurs when the drug's physiological effects threaten the patient psychologically. This

is the mechanism whereby enhanced anxiety or even psychotic episodes may be produced. Because of it, psychotherapy is of the greatest importance. When used correctly it usually overshadows the effects of the drug. Milieu and relationship are what count most since no patient is treated in a vacuum. The other factors, important as they may be, are only adjuvants. A satisfactory doctor-patient relationship admittedly makes the best medication work even better. Some in any group of neurotic patients experience relief after drug administration provided they are treated by a sympathetic doctor. But drugs are not an effective substitute for intimate human contact with the patient. A trusted dentist is worth a lot more than a grain of codeine.

Firmness is not the same as harshness and tolerance is not synonymous with weakness. One must learn to accept a limited goal when necessary and yet be flexible if the situation changes. The doctor's acceptance of his personal limitations in the face of unalterable dysfunction is most important, the more so since some kinds of behaviour are merely intensified when undue pressure is exerted in order to relieve the symptoms.

Different therapists using diverse techniques frequently achieve similar results. This suggests that the experience and capacity of the doctor are far more important than the theories of therapy. This statement leads to the discussion of hypnosis.

The widespread use of hypnosis in dentistry is remarkable. Its use, however, entails an appreciation of human behaviour. When hypnotic techniques are applied without such knowledge there is no control over the powerful emotions which may be released.

Borland and Epstein¹ contend there is a place for hypnosis in dentistry. They cite the need for dentists who are well trained in the psychodynamics of hypnosis as applied to dental treatment and who can recognize patients who are unfit for hypnosis. Paradoxically, their controlled study of the personality traits of 34 San Francisco dentists suggests that well adjusted practitioners who obtain satisfac-

tion from conventional dental practice seldom use hypnosis. Those who use hypnosis seem to require it to satisfy their own personal needs. Hypnosis *per se* may not be at fault, but rather the way in which its users learned it. Most of the dentists studied by Borland and Epstein had taken one or more short commercial courses. This distinguishes them from more stable and mature confrères who acquire their knowledge of hypnosis under university or hospital auspices.

This problem may be resolved as more universities and hospitals provide postgraduate instruction in hypnosis. Eight American universities now give year-round postdoctoral courses in clinical hypnosis. Psychiatry and psychology must continue to provide leadership in exploring and controlling this useful tool. But a science whose ramifications extend into all the biological and social sciences can never be the exclusive property of any single discipline.

For the past 18 months I have used a new technique which I call 'sensory hypnoplasy.' This consists of modelling with clay (plasticine) under hypnosis. It allows the patient to give plastic expression to suppressed or repressed material. Defences which hinder the verbal expression of a conflict may be expressed through modelling. Hypnoplasy must not be confused with occupational or recreational therapy. The model changes constantly as the patient works out his associations with it. Treatment is thereby quickly initiated and also intensified. The hypnotic state markedly reduces the effect of the suppressive and repressive mechanisms. The increased emotional participation is due to the relative permanence of the plastic symbol as opposed

to the transience of the verbal symbol.

The dynamic quality of hypnoplasy is accentuated by incorporating thermal, muscular, visual and tactile sensory stimuli in the plasticine. This is done by manipulating the temperature, texture, consistency, colour and smell of the clay. Sensory hypnoplasy brings out conflicts dealing with phobias, toilet training, menses, sex, personal and interpersonal relationships. It aids the associative amnesia required in the treatment of psychosomatic conditions. Since the patient is quite unprepared in lining up his usual defences, sensory hypnoplasy produces a remarkable ventilation of suppressed and repressed material. This, in turn, is followed by a much more rapid insight and acceptance of reality than is usually observed with more routine methods.

The dentist may use hypnosis safely and effectively provided he has an adequate understanding of psychodynamics. With added training, the average dentist may gain the necessary conception of human motivation and personality development. He will learn to recognize the various forms of anxiety, frustration, depression and agitation. He will become as familiar with the neuroses as he is with his drill. Thus he becomes more useful to his patients.

In the distant future, long after our present-day wonder drugs and techniques will have been forgotten, human relationships and the psychology of illness will assume even greater importance than they do now.

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Recherches sur la croissance cranio-maxillo-faciale et somatique de l'enfant canadien-français

Cranio-maxillofacial and somatic growth and oral health in French Canadian children

Des recherches sur la croissance ont comme objectif premier de fournir une réponse aux parents qui demandent au dentiste, ou au pédiatre: "Mon enfant

est-il normal?" Normal comparé à qui? — à quoi? — à l'ensemble de la population.

Question relativement simple et précise, mais réponse confuse et incertaine;

Le Centre de recherche sur la croissance de l'Université de Montréal a mis en marche une étude sur la croissance des enfants canadiens-français. Deux cents enfants de Montréal, garçons et filles de six à 16 ans, provenant de trois niveaux socio-économiques bien distincts, font l'objet de ce travail. L'étude tiendra compte des taux DMF de l'hygiène buccale, de la maladie périodontique et des malocclusions. L'éruption des dents permanentes, la résorption des racines des dents temporaires et le développement des lésions périapicales seront mis en évidence grâce à la radiographie panoramique. Des céphalogrammes et des modèles d'étude permettront de suivre la croissance maxillo-faciale et crâniale. On fera aussi des mensurations du squelette de façon à voir s'il est possible d'établir une relation entre la croissance du squelette et celle du complexe maxillo-facial. Des études très poussées dans les domaines sociologique, nutritif et médical donneront des renseignements additionnels au sujet de l'environnement de chacun des enfants.

The Growth Research Centre at the Université de Montréal has launched an investigation of growth in French-Canadian children. The project embraces 200 Montreal boys and girls aged 6-16 from three distinct socioeconomic strata. The study will include assessments of DMF scores, oral hygiene, periodontic disease and malocclusion. Eruption of permanent teeth, resorption of deciduous tooth roots and development of periapical lesions will be studied by panoramic radiography. Cephalographs and casts will be used to trace cranial and maxillofacial growth. These will be supplemented by skeletal growth measurements and an attempt will be made to correlate skeletal and cranio-maxillofacial growth data. Exhaustive sociological, nutritional and medical investigations are expected to yield important additional background information about each child's environment.

car l'ensemble de la population, la population canadienne francophone, n'a jamais fait l'objet d'études systématiques pour établir ses normes de croissance.

Cette constatation s'applique aussi à l'hygiène et aux maladies de la bouche et des dents. Réaliser la gravité et l'étendue d'une maladie au niveau d'une population



FIGURE 1 La céphalométrie est une partie de l'anthropométrie qui consiste à déterminer méthodiquement les mensurations de la tête. Ces mesures sont faites par un anthropologue physique. Sur ce cliché, l'anthropologue mesure la largeur frontale minima d'un patient.

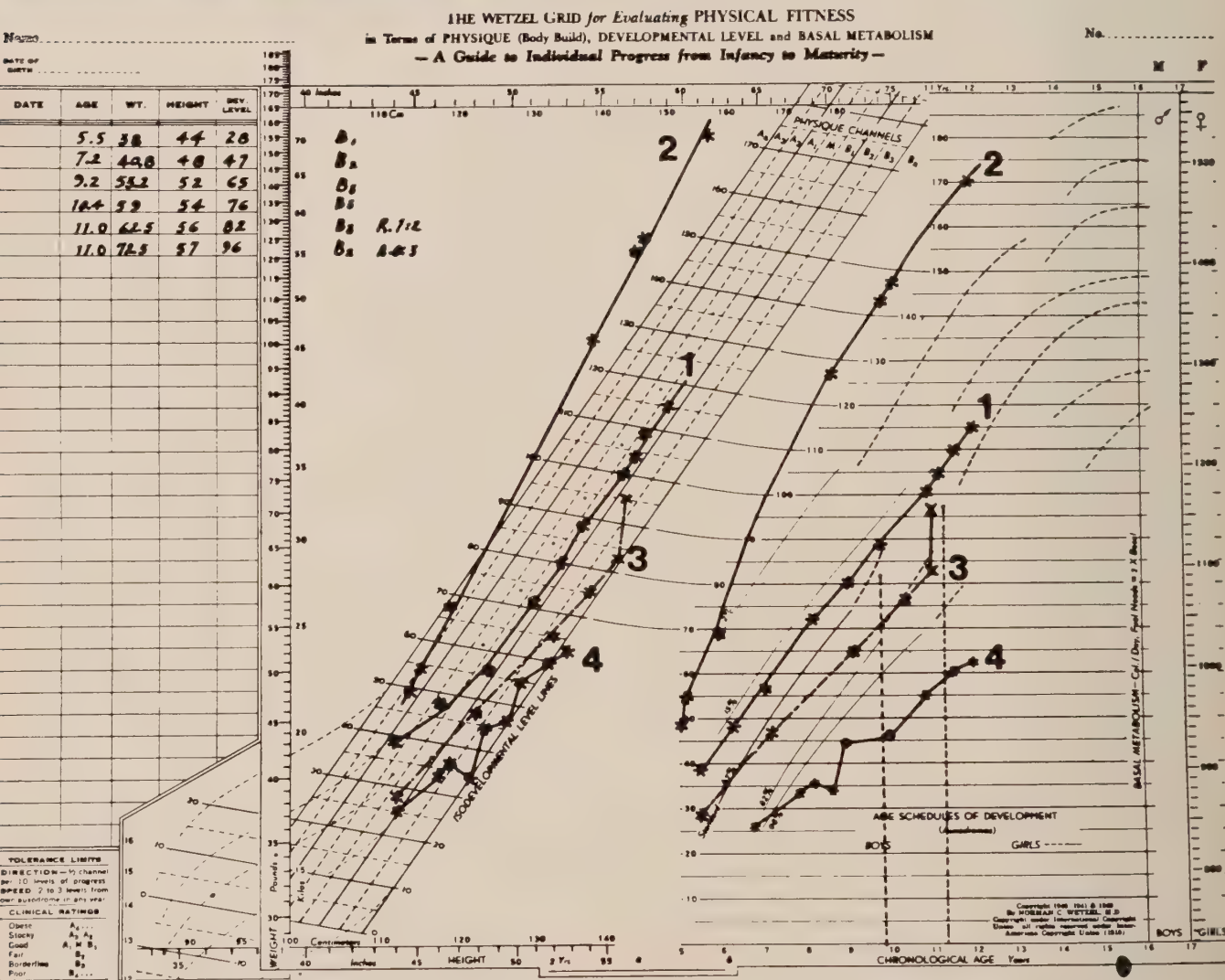


FIGURE 2 La Grille de Wetzel. Nous employons la Grille ci-dessus pour évaluer la tendance (la direction) de la maturité physique de l'enfant, sur une période de plusieurs années. La courbe No 1 représente le développement d'un enfant normal qui suit la direction des canaux. La courbe No 2 est l'exemple d'un enfant obèse qui s'écarte des canaux réguliers vers la gauche. Cet enfant pourrait être traité lors de sa troisième visite chez le pédiatre, s'il avait été suivi régulièrement. La courbe No 3 représente un enfant mal nourri, en dessous de la courbe normale. Toutefois cet enfant a reçu un traitement, lors de sa troisième visite, qui l'a ramené vers la courbe normale. La courbe No 4 est l'exemple typique d'un enfant qui a souffert de maladies chroniques. Sa courbe est restée toujours en dessous et à la droite de la courbe normale.

constitue le premier stade d'une planification en vue de l'élimination de cette maladie.

La détermination des anomalies de croissance suppose l'existence d'une courbe de croissance normale: il faut connaître le normal pour déceler l'anormal.

Les recherches entreprises à l'Université de Montréal ont pour but d'établir le taux de croissance du massif cranio-facial, surtout de la région des maxillaires et celui du développement et de l'éruption des dents; ces données, comme résultat pratique, permettront de prévoir la croissance.

Pourquoi établir les normes de croissance de la population de langue française de la province de Québec? Une comparaison avec d'autres groupes de race blanche n'est-elle pas possible?

Chez les noirs, on ne peut pas comparer un pygmée à un dinka (population vivant en Afrique tropicale). Chez les blancs, il est inconcevable de juxtaposer les données de croissance physique des Italiens à celles des Scandinaves. De même, pour des raisons de précision, le type canadien-français ne peut pas être comparé au Français de France, ni à l'anglo-saxon du Canada. Trop de facteurs entrent en jeu: nutrition, climat, milieu socio-économique, hérédité, etc.

Le canadien de descendance française vivant dans un contexte nord-américain, pour être évalué d'une façon rigoureuse, a besoin de standards scientifiquement établis.

Deux raisons militent en faveur de l'établissement de ces standards: (1) formulation d'un diagnostic précis, par comparaison aux autres membres de la même population, de même âge et de même sexe; (2) recommandation d'un traitement adéquat et applicable au groupe. La biprotrusion maxillaire d'un nègre—caractéristique normale de sa race—doit-elle être traitée pour que ce patient ressemble à l'américain de race blanche?

MÉTHODOLOGIE

Le Centre de croissance de la Faculté de chirurgie dentaire se propose une étude longitudinale mixte qui durera quatre ans. L'échantillonnage se compose de 100 garçons et de 100 filles de 10

groupes d'âge entre six et 16 ans. C'est dire qu'environ 2,000 enfants y seront examinés. Cette période de vie comprend les stades de l'enfance (âge scolaire) et de l'adolescence; elle couvre la puberté et cette phase a beaucoup d'importance au point de vue croissance: elle constitue le trait d'union entre l'enfance et l'âge adulte. La période de la dentition mixte a de plus, une signification valable.

Les enfants, pour servir aux recherches sur la croissance des francophones canadiens, doivent répondre à trois conditions: (1) être canadien français depuis au moins trois générations; (2) appartenir à une classe sociale déterminée; (3) avoir un certain âge.

Le premier critère de ce choix a pour but de compiler des statistiques au sujet d'un groupe ethnique pur, c'est-à-dire d'une agglomération dans laquelle ne se sont pas introduites d'apports génétiques étrangers.

Une étude sur la croissance doit tenir compte de la classe sociale des spécimens. Aussi l'enquête s'établit-elle au sein de trois secteurs socio-économiques de la population de la ville de Montréal: élevé, moyen, bas.

Le troisième critère de sélection se base sur l'âge. Il faut que l'enfant soit examiné en dedans de deux semaines de la date de sa naissance de façon à mettre en parallèle sa maturation squelettique et son âge chronologique.

DESCRIPTION DES RECHERCHES

Les recherches entreprises au Centre de croissance de la Faculté de chirurgie dentaire de l'Université de Montréal, se proposent deux objectifs principaux: (1) l'étude du taux de croissance et de développement des enfants canadiens d'expression française; (2) l'analyse épidémiologique des maladies bucco-dentaires de cette jeune population.

L'élaboration de statistiques dans ces deux domaines suppose des examens et des enquêtes multiples. Chaque enfant est l'objet de nombreuses constatations.

Croissance et développement

Croissance somatique. — L'étude de la croissance de l'enfant se fait par anthro-

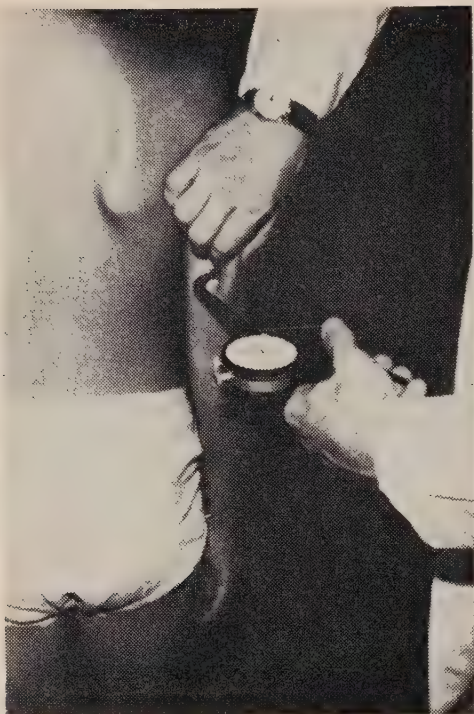


FIGURE 3 Mesure du pli cutané dans la région tricipitale.

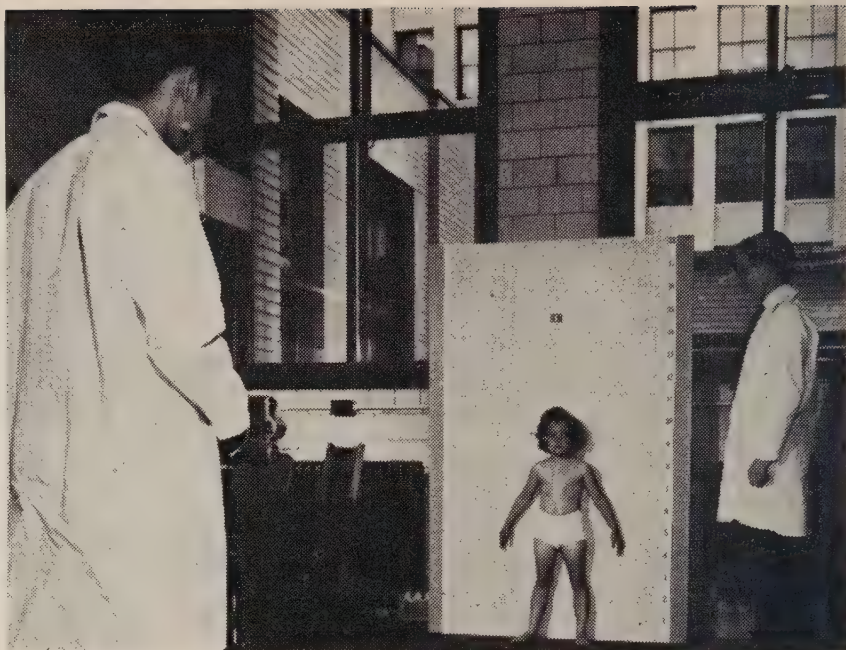


FIGURE 4 Détermination du somatotype par photographie.

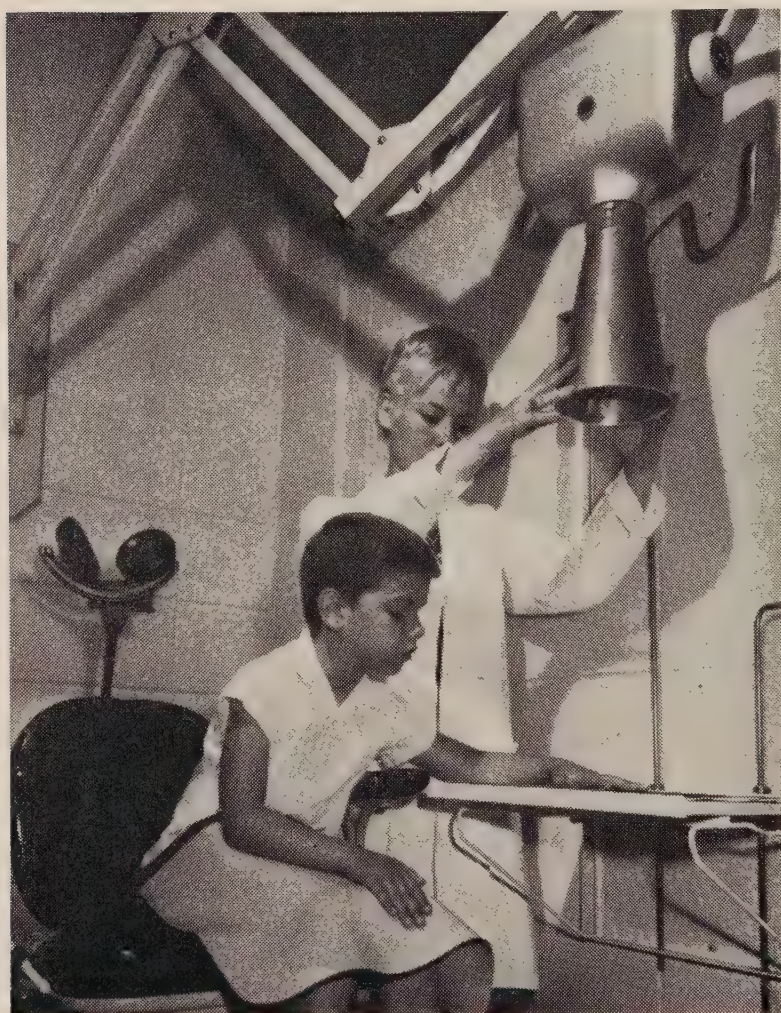


FIGURE 5 Prise de la radiographie de la main et du poignet.

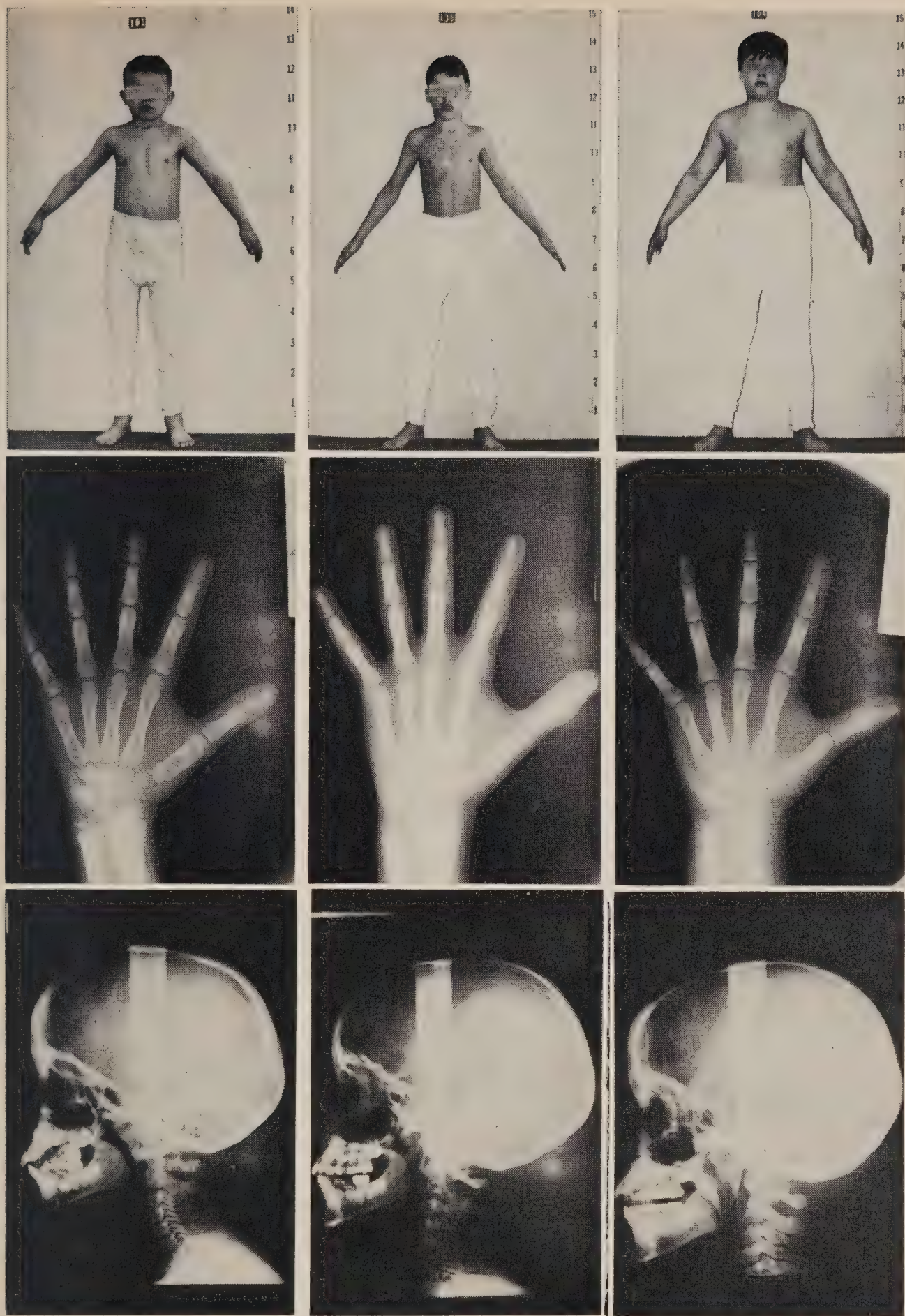


FIGURE 6 Trois enfants de même âge chronologique soit 10 ans. Notez les différences de la taille: (C.D. 101) 123.2 cm, (D.T. 135) 132.2 cm, (L.M. 104) 143.4 cm. Leur âge osseux est respectivement: 7 ans 8 mois, 10 ans, 12 ans 3 mois. Remarquez la différence avec l'âge chronologique. L'âge osseux de l'enfant D.T. 135 correspond à son âge chronologique, tandis que l'enfant C.D. 101 est en retard, et l'enfant L.M. 104 est avancé par rapport à son âge chronologique. La longueur antéro-postérieure de leur tête est respectivement: 17.2 cm, 17.7 cm, 18.8 cm. Cette différence dans la longueur de la tête se manifeste aussi dans d'autres mesures crâniennes et faciales.

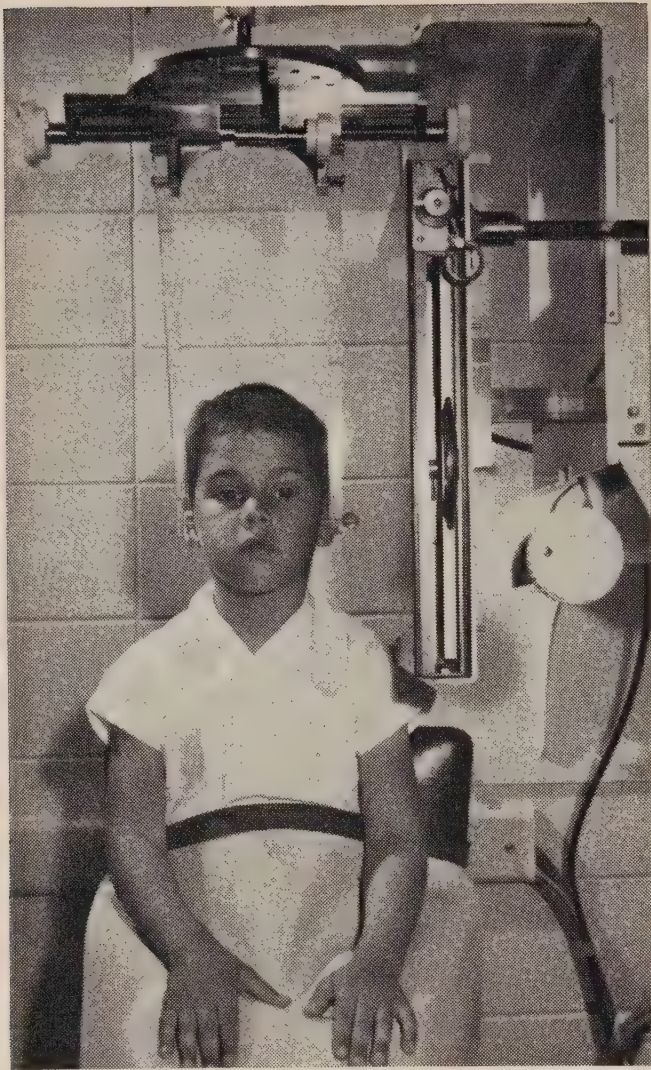


FIGURE 7 Le patient est placé dans un céphalostat "Evald", afin d'obtenir une vue latérale.

pométrie, c'est-à-dire par des mensurations faites au niveau du corps et surtout de la tête (Figure 1). Ces mensurations se répètent d'une année à l'autre, et les résultats sont enregistrés sur une Grille de Wetzel, pour noter le rythme de la croissance cranio-faciale et corporelle (Figure 2). Les caractéristiques faciales — forme du nez, des oreilles et des lèvres, la couleur des yeux, des cheveux, de la peau — serviront à établir le type canadien-français. On prélève aussi certains périmètres — thorax, cou, bras, cuisse, mollet, plis cutanés, etc. Ce dernier prélève sert à évaluer l'épaisseur du tissu sous-cutané, en d'autres termes de la graisse sous la peau dans différentes parties du corps: tricipitale, sous-scapulaire, iliaque (Figure 3).

Ces constatations fournissent des indications sur la nutrition de l'enfant, car, à un autre stade de l'examen, des corrélations sont faites entre les aliments que l'enfant absorbe et l'épaisseur des tissus sous-cutanés. Ces tissus d'ailleurs diffèrent de volume selon le sexe. Des photographies du corps (de face, de profil et de dos) sont prises (Figure 4). Ces photos servent à déterminer les formes somatiques corporelles de l'enfant aux différents âges. Il va sans dire que le poids et la taille de l'enfant sont notés.



FIGURE 8 Au moyen d'un examen précis, le médecin détermine le développement neuro-moteur et intellectuel de l'enfant.

FIGURE 9 Lors de l'enquête alimentaire, la mère accompagne l'enfant pour aider la nutritionniste à compléter le dossier alimentaire.



On tient compte aussi de la taille des parents, surtout celle de la mère, pour prévoir la taille que devrait avoir l'enfant à l'âge adulte, car les périmètres héréditaires et génétiques ont une influence marquée sur la hauteur d'un individu.

La maturation osseuse est déterminée à l'aide d'une radiographie du poignet (Figure 5). L'âge physiologique de l'enfant — âge le plus important — s'établit facilement au niveau de la main et du poignet, car là se trouvent 28 os en différentes phases de développement. Deux enfants d'âge chronologique identique peuvent avoir un âge osseux ou squelettique différent. Les renseignements que fournissent les radiographies du poignet jouent un rôle important dans le diagnostic et le traitement d'anomalies de retard ou de précocité du développement osseux (Figure 6).

Développement du massif cranio-maxillo-facial. — Cette étude intéresse davantage les dentistes, puisqu'il s'agit de la région des maxillaires et de la face. Cette étude se fait de trois façons:

(a) Par céphalométrie: On mesure les dimensions de la tête du sujet.

(b) Par radiographie céphalométrique: La tête de l'enfant est radiographiée en position postéro-antérieure et latérale (Figure 7). Les calculs sont effectués à l'aide de ces radiographies pour évaluer les différentes longueurs, distances d'un point à un autre, largeurs, profondeurs, hauteurs et angulations. Les dimensions les plus intéressantes sont celles de la

hauteur de la face; hauteur des étages supérieur et inférieur, celle de la branche montante de la mandibule, etc. En profondeur, sont mesurées la longueur totale de la base du crâne, et celle de la mandibule, etc. En largeur, les axes bizygomatics, bi-maxillaires, bigoniaques, bicondillaires, etc. Sont aussi notés les rapports de la denture avec le squelette, en d'autres termes des supports que sont le maxillaire supérieur et la mandibule.

(c) Par modèles d'étude: Des empreintes sont prises à chacune des visites de l'enfant. Les modèles servent à déterminer la croissance des maxillaires en largeur et en longueur, le volume des dents, les espaces interdentaires, etc.

Développement intellectuel. — Cette étude s'effectue par des tests psycho-neuromoteurs destinés à évaluer la maturation neuro-motrice et intellectuelle de l'enfant pour mettre en parallèle cette maturation psychique et son développement physique (Figure 8). On note ses antécédents familiaux et personnels. Les antécédents familiaux veulent dire les maladies observées dans la famille, chez le père, la mère, les frères, les sœurs: diabète, obésité, tuberculose, alcoolisme, troubles mentaux, etc. Les antécédents personnels de l'enfant sont ses maladies ou celles de sa mère durant la grossesse. On tient compte aussi des médicaments absorbés par la mère lorsqu'elle portait l'enfant. Cette étude se complète par un examen physique: organes génitaux, seins, pilosité axillaire ou pubienne. Ces examens sont très impor-

CENTRE DE CROISSANCE
 UNIVERSITÉ DE MONTRÉAL

HYGIÈNE BUCCALE - CONDITIONS PERIDENTAIRES

Nom du patient _____ No.

1	2	3	4
---	---	---	---

 Sexe

5

 Age

6	7
---	---

 Date de naissance

8	9
---	---

 jour

10	11
----	----

 mois, 19

12	13
----	----

Examineur _____ Date d'examen

14	15
----	----

16	17
----	----

18	19
----	----

MAXILLAIRE SUPÉRIEUR

	HYGIÈNE BUCCALE														CONDITIONS PÉRIDENTAIRES										Code formel									
	Buccal				Lingual				Total		Quantité		Coloration	Nombre de Brossages		Inflammation	Pêche	Mobilité	Hyperplasie	Quantité d'index périodentaire														
	Débris	Tartre (Calcul)	Débris	Tartre (Calcul)	Total du débris (ml.)	Total de tartre (ml.)	de Débris	de Tartre	Par jour	Par semaine																								
GAUCHE	Pm ₁ (M ₁ f)	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	75	76	77	78	79	80
	I ₁	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72							
DROIT	M ₁	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46						

MANDIBULE

	HYGIÈNE BUCCALE														CONDITIONS PÉRIDENTAIRES										Code formel								
	Buccal				Lingual				Total		Quantité		Coloration	Nombre de Brossages		Inflammation	Pêche	Mobilité	Hyperplasie	Quantité d'index périodentaire													
	Débris	Tartre (Calcul)	Débris	Tartre (Calcul)	Total du débris (ml.)	Total de tartre (ml.)	de Débris	de Tartre	Par jour	Par semaine																							
GAUCHE	M ₁	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	75	76	77	78	79	80
	I ₁	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45						
DROIT	Pm ₁ (M ₁ f)	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	75	76	77	78	79	80
		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45						

OCCLUSION

	Relation des N ₁				Déplacement ou Rotation				Cherchement	Code formel										
	Crossbite postérieur		Crossbite antérieur		Déplacement de 2mm ou plus		Rotation de 45° ou plus													
	Gauche	Droit	Gauche	Droit	Déplacement de 2mm ou plus	Rotation de 45° ou plus	Déplacement de 2mm ou plus	Rotation de 45° ou plus												
Overjet supérieur	20	21							29	30	31	20	21	22	23	24	25	26	27	28
Overjet inférieur	22	23																		
Overbite	24	25																		
Overbite (antérieur)	26	27																		

FIGURE 10
 Fiche de l'examen dentaire clinique.

tants dans la détermination des stades de maturité, surtout dans la période de puberté.

Milieu socio-économique. — On établit le niveau socio-économique de l'enfant à l'aide des critères suivants:¹ (1) la profession des parents, (2) le niveau de l'ins-

truction, (3) la source principale du revenu familial, (4) le confort du logement, (5) l'aspect du quartier habité.

Le niveau social est intimement lié au mode de nutrition, à l'hygiène générale et bucco-dentaire, aux maladies de la bouche et des dents, et au taux de croissance de l'enfant.

UNIVERSITÉ DE MONTRÉAL

EXAMEN DENTAIRE CLINIQUE

Nom du patient
No.
Sexe
Age
Date de naissance
Jour
mois,
Année

Examineur
Date d'examen

MANDIBULE

D.M.F. ET ÉRUPTION
PATHOS
ANOMALIES

Mésial
Occlusal
Distal
Buccal
Lingual

1ère Dentition
2ème Dentition
Carie
Obturation
Carie
Obturation
Carie
Obturation
Carie
Obturation
Carie
Obturation
Carie
Obturation
Coronnes fracturées
Coronnes décolorées
Taches blanches
Taches brunes
Hypoplasie
Andentelle
Dent surmalformée
Cusps surmalformées
Microdentie
Macrodentie

DROIT
M₃
M₂
M₁
Pm₂M₂f
Pm₁M₁f
C Cf
I₂I₂f
I₁I₁f

D.M.F. ET ÉRUPTION
PATHOS
ANOMALIES

Mésial
Occlusal
Distal
Buccal
Lingual

1ère Dentition
2ème Dentition
Carie
Obturation
Carie
Obturation
Carie
Obturation
Carie
Obturation
Carie
Obturation
Carie
Obturation
Coronnes fracturées
Coronnes décolorées
Taches blanches
Taches brunes
Hypoplasie
Andentelle
Dent surmalformée
Cusps surmalformées
Microdentie
Macrodentie

GAUCHE
I₁I₁f
I₂I₂f
C Cf
Pm₁M₁f
Pm₂M₂f
M₁
M₂
M₃

FIGURE 11 Fiche de l'état de l'hygiène buccale des maladies périodentaires et des malocclusions.

Une enquête sociale est menée dans le milieu où vit l'enfant. On étudie la composition de la famille, le nombre des enfants (jumeaux), l'occupation du père et de la mère, la somme des revenus, le degré d'instruction, le nombre de pièces du logement, sa location, etc.

L'addition des diverses normes fournies par ces constatations sociologiques donne un chiffre qui classifie le niveau social de la famille. Au cours de cette enquête, on s'enquiert de l'âge du père et de la mère de l'enfant au moment de sa naissance pour établir des corrélations possibles

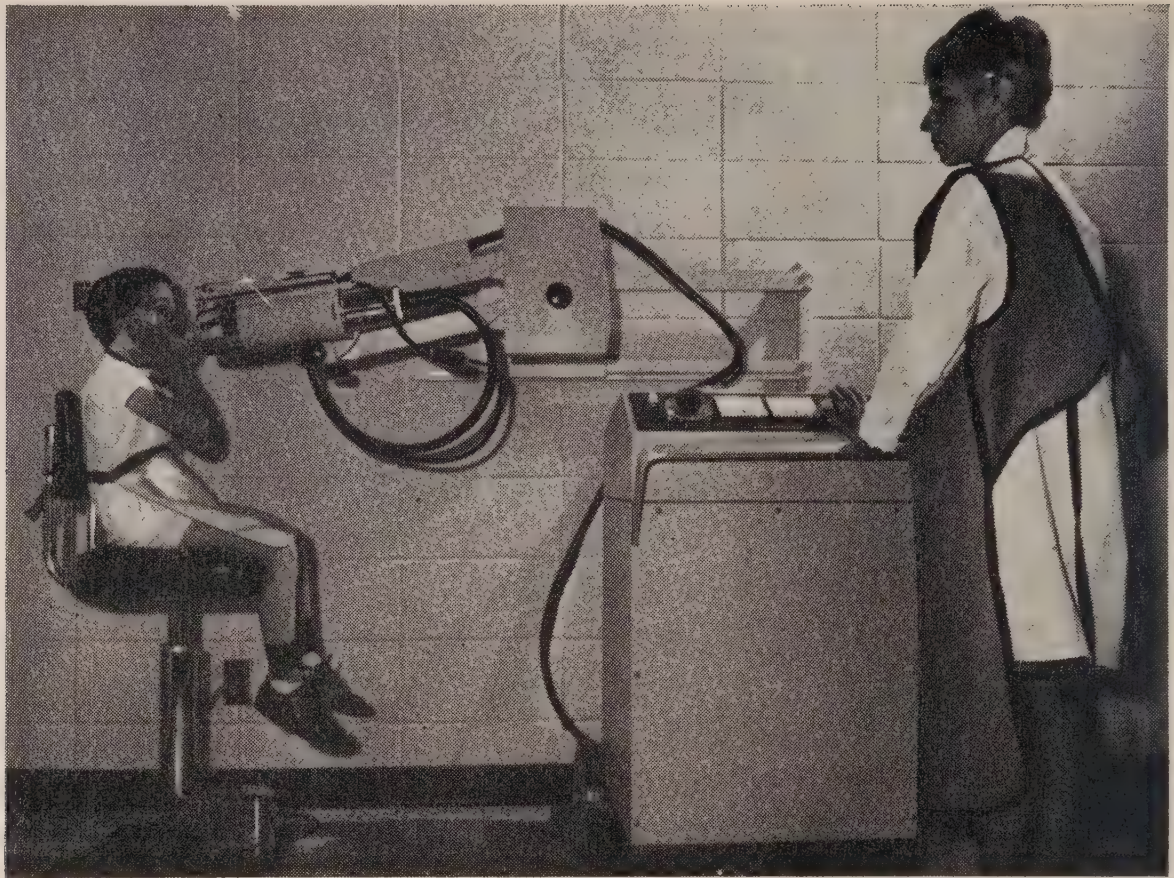


FIGURE 12 Prise de vue panoramique de l'anode dans la bouche.

entre ces données et certaines malformations ou arrêts de croissance.

Nutrition. — On entreprend une enquête alimentaire complète au sujet de chacun des enfants (Figure 9). On prie la mère

d'inscrire en détail trois fois par jour, dans un cahier *ad hoc* tous les aliments — solides ou liquides — absorbés par l'enfant au cours de la semaine qui précède son examen. Ces renseignements sont complétés par une entrevue de la mère chez

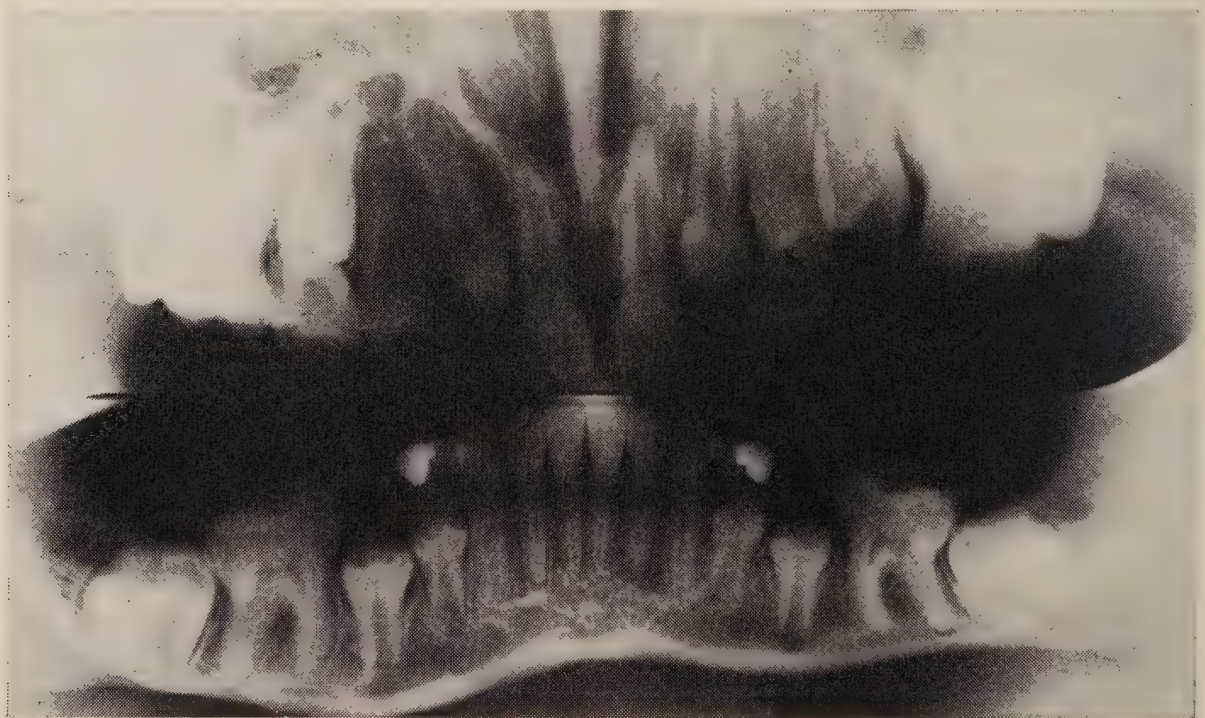


FIGURE 13 Vue panoramique des maxillaires à la période de la dentition mixte.

la nutritionniste; celle-ci, à l'aide d'un questionnaire, complète les renseignements. Ces données permettront de connaître les diverses façons de s'alimenter qu'ont les divers secteurs sociaux de la population canadienne-française, et de recommander, si nécessaire, des correctifs. Des corrélations pourront s'établir entre la qualité et la quantité des aliments ingérés et le degré de croissance de l'enfant, et son hygiène buccale.

Les trois dernières sections de ces recherches ont pour but d'évaluer le milieu dans lequel vit l'enfant pour établir une juxtaposition — si elle existe — aux résultats des trois premières qui analysent la croissance proprement dite.

Epidémiologie des maladies bucco-dentaires

L'enquête se propose d'analyser le taux des maladies bucco-dentaires des jeunes canadiens français. Elle s'opère en s'attardant à quatre considérations.

Evaluation de l'hygiène buccale. — Cette évaluation s'accomplit par un examen clinique. L'hygiène buccale est déterminée par le nombre de dents enduites de débris alimentaire ou de tartre du côté buccal ou lingual (Figure 10). Cet examen se fait selon les normes de Greene et Vermillion.² L'examen se termine par des conseils d'hygiène à l'enfant.

Evaluation de l'état de la denture. — Un examen clinique et un examen radiologique servent à cette évaluation. Sont notés le nombre de cavités de carie, des obturations et des dents absentes (DMF) au niveau des deux dentures, primaire et secondaire (Figure 11). L'examen radiologique consiste en un film panoramique (Figure 12) et des pellicules interarticulaires. Les radiographies permettent de déceler des lésions apicales et les caries proximales et de déterminer l'état des apophyses alvéolaires (Figure 13).

Evaluation des maladies périodentaires. — L'examen clinique et radiologique évalue l'état des tissus périodentaires pour cons-

tituer un quotient d'index périodentaires. Sont indiqués sur une fiche la présence de clapiers, leur profondeur, leur degré d'inflammation, la lyse du procès alvéolaire, la mobilité des dents, etc., en conformité avec les normes de Ramfjord.³

Classification des malocclusions. — Les malocclusions sont décelées d'après la relation des molaires, grâce à un examen clinique et des modèles d'étude; on note la présence ou l'absence d'occlusion croisée postérieure, d' "overjet, d'overbite, d'openbite, de chevauchement, de déplacement ou de rotation dentaire". Le système préconisé par Grainger⁴ sert à l'inscription des fiches.

CONCLUSIONS

Les recherches entreprises à l'Université de Montréal sur la croissance des enfants canadiens d'expression française et sur leur santé dentaire sont d'envergure. Elles intéressent tous les centres de recherches anthropologiques du monde, car elles s'opèrent dans plusieurs champs d'actions et sont de nature à fournir des renseignements inédits qui intéressent plusieurs disciplines scientifiques.

Elles groupent un personnel nombreux: directeur, orthodontiste, anthropologue, médecin, dentiste, assistante sociale, nutritionniste, technicienne en radiologie, statisticien, secrétaire.

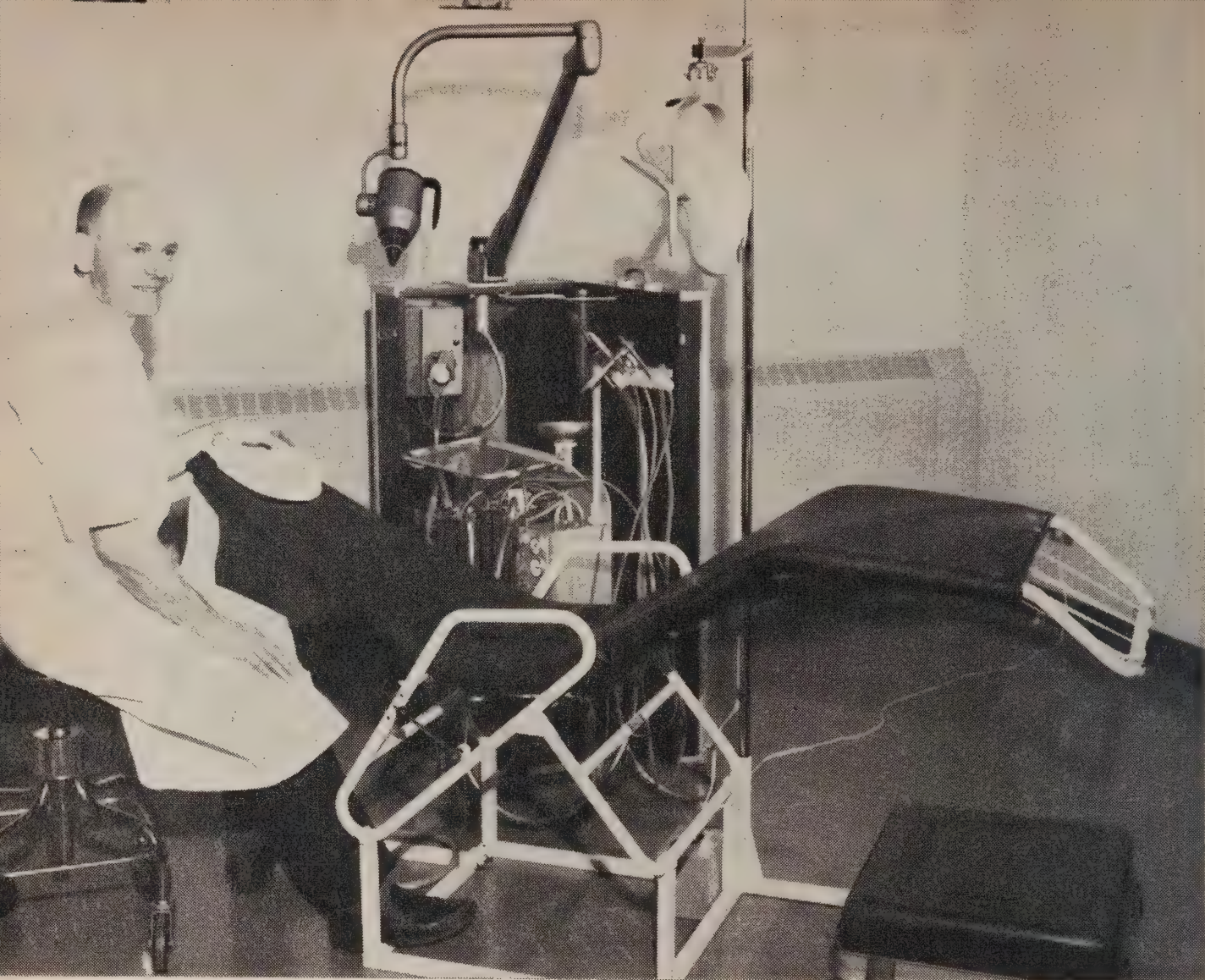
Elles sont parmi les plus considérables jamais entreprises en milieu canadien-français.

Cette étude s'effectue avec l'aide de deniers provenant de subventions à la recherche en hygiène publique (No 604-7-563), du Régime fédéral de subventions à l'hygiène.

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Portable equipment for 'sit-down-lie-down' dentistry

Équipement portatif moderne

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The temporary provision of dental services to children in areas where resident dentists are not normally available is one of the major dental public health activities of the British Columbia Health Branch. What was formerly very adequate equipment for this purpose has since been rendered obsolete by advances in instrumentation, equipment design, and operating methods taught to students in Canadian dental schools. Portable dental equipment embodying many of these improvements has been designed for the British Columbia Health Branch (Figure 1).

L'une des activités principales de la section de la Santé publique dentaire du ministère de la Santé de la Colombie britannique consiste à fournir sur une base temporaire, des services dentaires aux enfants des régions où il n'y a pas de dentistes résidents. Ce qui était autrefois un équipement tout à fait convenable pour ce service est devenu insuffisant par suite des progrès de l'instrumentation, de sa conception technique et des méthodes chirurgicales, telles qu'elles sont enseignées dans les écoles dentaires canadiennes. De l'équipement dentaire portatif présentant un grand nombre de ces amé-

FIGURE 1 (opposite) The complete portable equipment comprises an Encore portable dental operating unit DC-518-C, an Encore portable air compressor E-519-C (not shown), a Siemens Heliodent portable x-ray unit, a Pelton & Crane 'Light Fantastic,' a Pelton & Crane 'Instruclave' autoclave (not shown), a Pedigo operating stool, and the transportable dental chair.

FIGURE 1 (en face) L'équipement portatif complet comprend un ensemble d'instruments portatifs Encore DC-518-C, un compresseur d'air portatif Encore E-519-C (non illustré), un appareil de radiographie portatif Siemens Heliodent, une lampe "Light Fantastic" Pelton & Crane, un autoclave "Instruclave" Pelton & Crane (non illustré), un tabouret Pedigo et une chaise dentaire amovible.

FIGURE 2 All equipment, except instruments and supplies, travels in five carrying cases as shown. The case at the left contains the operating stool, mobile trolley for the operating unit, operating light, rheostat and autoclave. Its dimensions are 33 x 16 x 19 inches. It weighs 105 lbs. The case at the rear centre contains the dental chair, cushions, and light standard. Its dimensions are 40 x 26 x 13 inches. It weighs 120 lbs. The case on the right is the portable x-ray unit in a foam rubber-lined travelling bag. Its dimensions are 19 x 9 x 43 inches. It weighs 115 lbs. Left front is the portable air compressor, measuring 20 x 20 x 11 inches and weighing 80 lbs. Right front is the portable operating unit, measuring 20 x 20 x 11 inches and weighing 50 lbs.

liorations a été conçu pour le ministère de la Santé de la Colombie britannique (Figure 1).

La conception de cet équipement dentaire portatif est en fonction du poids et des dimensions des éléments. Ceux-ci doivent pouvoir être transportés facilement d'un camion ou d'un station-wagon à la salle utilisée temporairement comme clinique dentaire (Figure 2). Le dentiste et son assistant sont souvent les seules personnes disponibles pour faire ce travail.

L'équipement, décrit ici, présente les mêmes avantages et la même commodité

FIGURE 2 Tout l'équipement, sauf les instruments et les matériaux, tient dans cinq caisses, comme le montre l'illustration. La caisse de gauche contient le tabouret, la base mobile, la lampe, le rhéostat et l'autoclave. Elle mesure 36 x 16 x 19 pouces et pèse 105 liv. La caisse, au centre arrière, contient la chaise dentaire, les coussins et la base de la lampe. Elle mesure 40 x 26 x 13 pouces et pèse 120 liv. La caisse de droite est celle du dispositif portatif de radiographie, emballé dans un sac de voyage doublé de caoutchouc mousse. Ses dimensions sont 19 x 9 x 43 pouces et son poids de 115 liv. La caisse à l'avant, à gauche, renferme le compresseur d'air portatif. Elle mesure 20 x 20 x 11 pouces et pèse 80 liv. Celle de droite, à l'avant, de 20 x 20 x 11 pouces, pèse 50 liv. et contient les instruments.

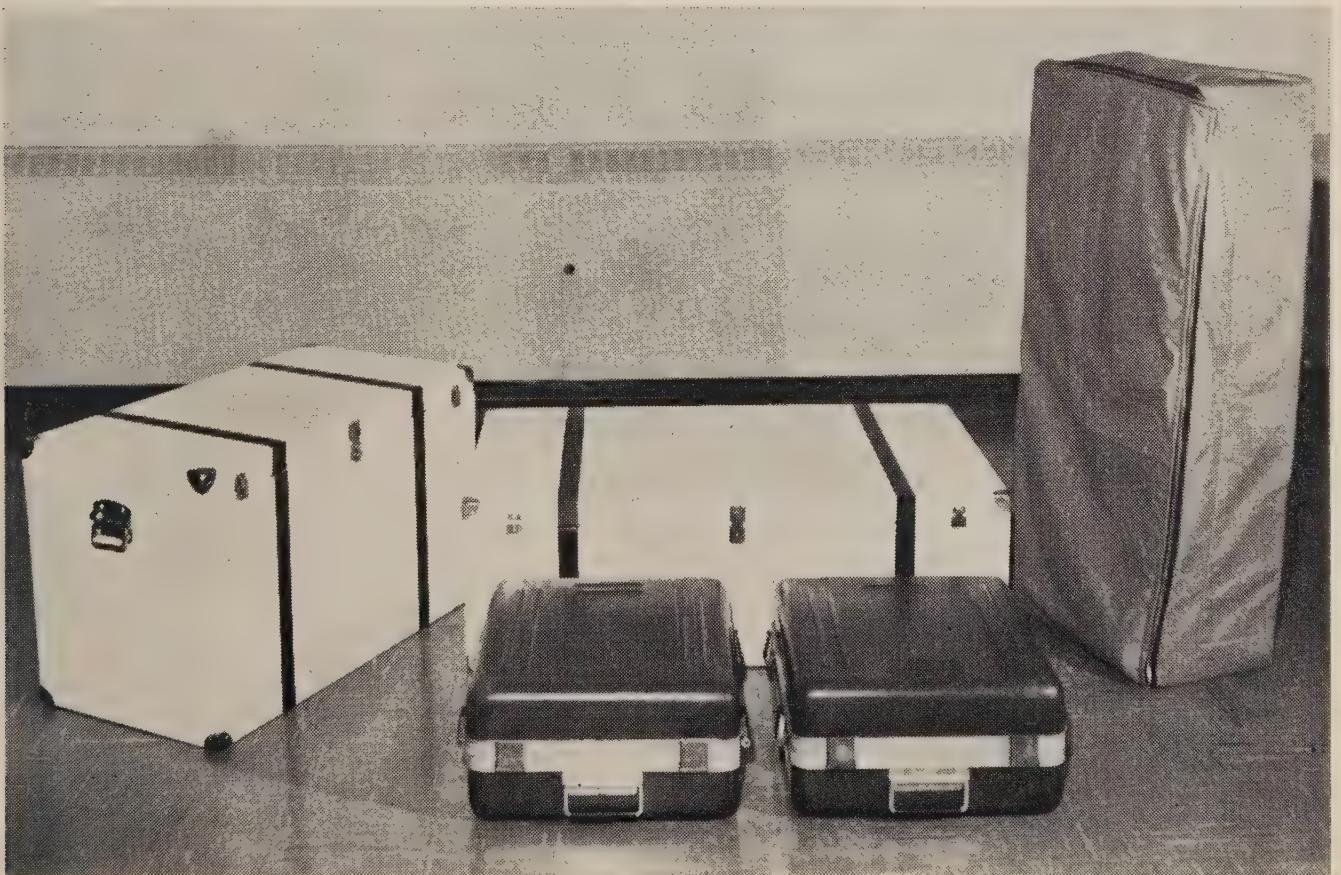




FIGURE 3 The operating light provides three different light intensities and may be adjusted to any desired height. Large covered cushions placed between the knees and buttocks adapt the chair for young children. The portable operating unit mounted on a mobile trolley provides high and low-speed air driven handpieces, vacuum operated cuspidor, evacuator syringe, connection for saliva ejector, three way air-water syringe, and instrument tray.

FIGURE 3 La lampe donne trois intensités de lumière différentes et peut être ajustée à la hauteur voulue. Des coussins de grandes dimensions peuvent être placés entre les genoux et le siège de jeunes enfants pour adapter la chaise à leur usage. L'ensemble d'instruments portatifs, monté sur une base mobile, permet l'usage d'instruments à l'air comprimé à grande et à faible vitesse, d'un crachoir qui fonctionne par appel d'air, d'une seringue d'évacuation, d'un raccord pour la pompe à salive, d'une seringue air-eau et d'un plateau d'instruments.

The design is governed by the weight and size of the components. These must be such that they may be carried by hand from a truck or station wagon to the room temporarily assigned as a dental clinic (Figure 2). The dentist and his assistant are often the only persons available for this task.

The equipment here described provides the same operator capability and convenience and patient comfort as modern equipment in a permanent dental office. No plumbing is required and the kit can be set up in a limited space wherever 110 volt electrical power outlets are available. The complete equipment can be assembled or packed in 30 minutes. Mounting the dental operating unit on a mobile trolley with an instrument tray increases its adaptability to the needs of any individual dentist. The unit can be used as desired from the left or right sides of

que celui des cabinets dentaires permanents modernes et il est aussi confortable pour le patient. Il ne demande pas d'installation de plomberie et l'ensemble peut être placé dans un espace restreint, partout où il y a des prises électriques de 110 volts. L'équipement complet peut être assemblé ou emballé en 30 minutes. Le montage des instruments opératoires sur une base mobile, avec plateau d'instruments, lui permet de s'adapter aux besoins individuels des dentistes. Ils sont accessibles de la droite et de la gauche de la chaise ou de l'arrière de la tête du patient. Cet équipement permet "le travail à quatre mains" sous l'eau courante ou avec la digue (Figure 3).

Le compresseur fournit de l'air comprimé en quantité étonnante. Comme il est bruyant, il est équipé de 50 pieds de boyau pour permettre de l'installer dans un sous-sol ou même à l'extérieur du

the chair or from behind the patient's head. 'Four-handed dentistry,' with washed field or rubber dam, is easily accomplished with this equipment (Figure 3).

The compressor furnishes an amazing amount of air and pressure. Being noisy, it is equipped with 50 feet of hose connection so that it may be set up in a basement or even outside the building by passing the hose through a small drilled hole. This removes the noise from the vicinity of the operator—a desirable feature, since the compressor operates continually when the full evacuation system is in operation.

The chair, which is relatively inexpensive, has been adapted from a lounge health chair. It resembles the shape of a modern dental chair. An earlier model had interchangeable legs of three different lengths to suit the height of individual dentists. A recent modification makes the chair immediately adjustable to three different heights above the floor. The back of the chair may also be locked at any point in an arc ranging from a

bâtiment en passant le boyau par un trou. De cette façon le bruit est supprimé près de l'opérateur, ce qui est souhaitable puisque le compresseur est en marche continuellement quand le système d'évacuation fonctionne à plein.

La chaise, qui est relativement peu coûteuse, est une adaptation d'une chaise thérapeutique de repos. Sa forme ressemble à une chaise dentaire moderne. Un modèle plus ancien avait des pieds interchangeables de trois longueurs pour convenir aux différentes tailles des dentistes. Une modification récente rend la chaise ajustable à trois hauteurs différentes. Son dos peut être verrouillé en position à n'importe quel endroit, d'un arc allant d'une position complètement verticale à une position allongée. Les patients peuvent être assis (Figure 4) pour les

FIGURE 4 Vue détaillée des instruments, du plateau et du crachoir. Les régulateurs de voltage et de courant permettent l'ajustement aux sources de courant des différentes localités où l'équipement est installé. Le patient est assis confortablement dans une position verticale.

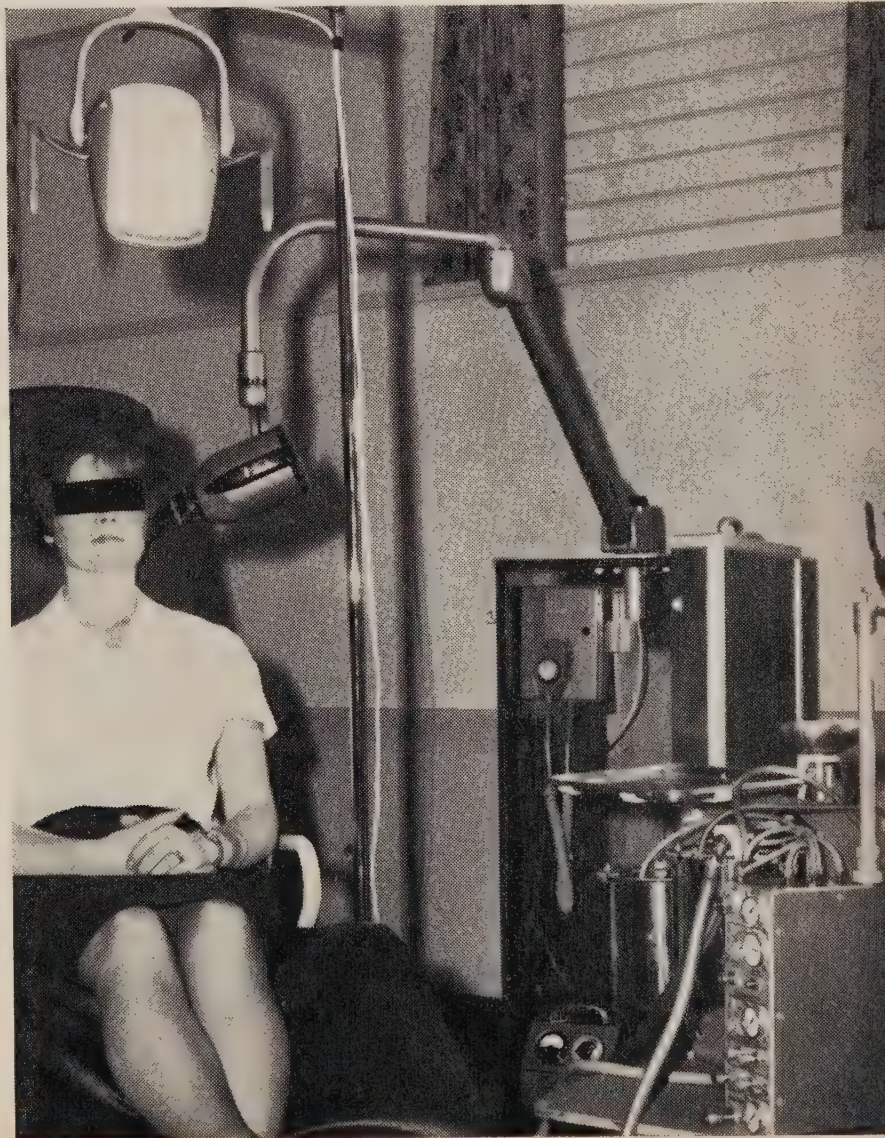


FIGURE 4 Close-up view of the operating unit, instrument tray and cuspidor. The voltage and current regulators permit adjustment to the varying sources of power encountered in the different locations where the equipment is installed. The patient is comfortably seated in an upright position.

completely upright to a reclining position. Patients can be seated upright (Figure 4) for impressions, injections, topical fluoride applications, and radiographs, or they may recline for operative dentistry. A safety bar prevents the chair back from tipping past the horizontal position should the lock ever fail. Three plastic-covered cushions are provided so that children of all ages may be comfortably and safely seated. The chair was adapted in local machine shops and upholstery stores in Kelowna.

This equipment, including the dental operating unit, air compressor, x-ray unit, autoclave, operating light, and chair, has been field-tested for a year without any breakdowns. Precautions that prevented fouling of the operating unit's instruments by dirt, and care in avoiding damage during shipping contributed to this trouble-free record. The total cost of producing a complete set of this equipment is close to \$5,000.

Such portable equipment is useful in areas which do not have a resident dental office. It could also prove valuable in underdeveloped countries of the world as they seek to make rapid strides in improving dental health.

*Regional dental consultant, British Columbia Health Branch.

empreintes, les injections, les applications de fluor et les radios ou ils peuvent être à demi-couchés pour la dentisterie opératoire. Une barre de sécurité empêche la chaise de basculer plus bas que la position horizontale, au cas où le verrou ne fonctionne pas. Trois coussins recouverts de plastique permettent d'asseoir des enfants de tout âge confortablement et en sécurité. La chaise a été fabriquée dans des ateliers locaux et des magasins d'ameublement de Kelowna.

Cet équipement, y compris les instruments, le compresseur, l'appareil de radiographie, l'autoclave, la lumière et la lampe, a été utilisé expérimentalement depuis un an, sans avarie. Des précautions prises pour empêcher l'encrassement des instruments et le soin pour éviter qu'ils ne soient endommagés en transit ont contribué à leur fonctionnement sans défaillance. Le coût total de la production de cet équipement complet se monte à peu près à \$5,000.

Un équipement portatif de ce genre est appréciable dans les régions qui n'ont pas de cabinet dentaire permanent. Il pourrait aussi se montrer utile dans les pays sous-développés qui cherchent à améliorer rapidement la santé dentaire.

390 Queensway

VANCOUVER



CDA
National
Convention
June 27-29
1968

Congrès
national
de l'ADC
27-29 juin
1968

Life and Leisure

The challenge

T. J. Harrop, Vancouver, BC.

Many roads lead to Rome — and many ways to success! What then is success? Webster's Dictionary defines it as the attainment of one's objectives. The end may be good or evil, but our society denotes it to be a good goal or attainment. The need to succeed has been described by psychologists as one of the secondary drives of mankind. Dr. Stroud, professor of educational psychology at the University of Iowa, lists our secondary needs as aggression, security, success, social acceptance and the need for activity to fill our leisure or social time. To these I would add one further condition, that of awareness. Awareness, to me, is the ability to use my senses to the fullest, the ability to play 'heads up' living which is valuable beyond measure.

Why be aware? Why live? Everyone asks these questions of himself over and over before death. They are but two of the many imponderables that can only be answered from within. Who really knows the answer to the riddle of life? Man's existence on this earth may serve some useful purpose, but what that purpose is we do not know and possibly may not need to know. But let us presume that the more experiences the brain records, the more it is able to interpret for us. From this we may assume that a full life is the better for us.

At this point I wish to plead for a full education, a diverse education, not that of the specialist, but of the whole man. Dr. Claud Colman, professor of English at the University of Southern Illinois, exemplifies this proposition. He admits that "our society needs specialists but it is desperate for men and women. The

splendid splinter must be replaced by the splendid man."

The question must then be asked: how do we build a healthy, happy, responsible man or woman? How can we stimulate more people to realize the vitality of life that comes from reading poetry, travelling in one's own company, cycling across a continent, climbing mountains or swimming channels? How can we induce our compatriots to be aware of and perceive "the beauty of the morn, silent, bare," the smell of new-mown hay, the crispness of an apple, or listen to "the murmurous haunt of flies on summer eves?" How can we inspire others as did Keats who gave us this eloquent testimony of his eternal awareness at the sight of a rainbow:

My heart leaps up when I behold
A rainbow in the sky
So was it when my life began
So is it now I am a man
So be it when I shall grow old
Or let me die.

Baron de Courbertin, the originator of the present-day Olympic Games, contended "it isn't the winning that counts, but the taking part," and this holds special significance for me since I was a competitor in the Olympics. No, I didn't win, but I did participate! Surely this is how we should meet the challenges of life, by participating in as much as possible and winning sometimes, but ever aware that we can attain some but not all of our goals.

Though it is hard to pause in our anxiety to forge ahead, gain money or fame, let us remember these lines from Davies' poem "Leisure":

What is this life, if, full of care,
We have no time to stand and stare.
And so I submit the following credo:

see experiences for what they are; set realistic goals for yourself; subscribe to honesty, tolerance and a sense of humour, be aware of birth, life and death, and

This above all: to thine own self be true,
And it must follow, as night the day,
Thou canst not then be false to any man.

Private versus Public Enterprise in Dentistry: an Economic Analysis

A. I. Hamilton. *J. Amer. Dent. Ass.* 75:359, 1967.

The problem considered is whether dentistry by public or private enterprise is preferable. Economic factors of both systems are examined, basic economic principles of dentistry described, criteria for evaluating economic performance established and achievements of both systems compared.

Public enterprise is characterized by public ownership of the means of production and distribution and the desire to maximize public welfare. In private enterprise, private ownership and the maximization of profits are dominant. As factors of production are scarce and have alternative uses, choices must be made regarding their use. Under socialism, these choices are made by government; under capitalism, entrepreneurs act on consumers' preferences as evident in the market.

The price of dental services is determined by the interaction of supply and demand. Economic forces strive to reach the price at which the number of services demanded equals the number supplied. Differing rates of profit from different types of dental services exist because patients are willing to pay more for one type of service than for another.

The dental market is predominantly competitive because there is a large number of buyers and (with exceptions) of sellers, products are similar in type and fees are set independently. It has monopolistic elements in so far as products vary greatly in quality, freedom of entry and mobility is restricted and consumer knowledge of the market is imperfect. Demand for dental treatment is a function of dental need although it is unlikely that they will ever be equal. Demand is not influenced solely by the cost of services but by nonmonetary factors (ignorance, apathy and fear). Supply of dental treatment depends on the number of practising dentists, their working time and efficiency. Productivity is related to the number of dentists graduating and recruitment depends on the monetary and non-

monetary advantages of dentistry relative to other vocations.

The argument for the inadequacy of private enterprise dentistry is based on two assumptions: (1) there is an insufficient number of dentists to provide comprehensive treatment for all; (2) part of the population cannot afford dental care. With Canadian and American dentistry exemplifying private enterprise and British National Health Service dentistry illustrating public enterprise, the two systems are evaluated using economic criteria.

Productivity—Quantity: In the short run, the quantitative difference is likely to be small. Increases in the long term supply of services is directly related to dental school capacity. The evidence shows that government enterprise has lagged far behind in augmenting training facilities.

Productivity—Quality: Optimum time required for high quality treatment is probably greater than the average time spent in practice. A standard fee schedule leads to reduced quality because inferiority is more highly rewarded than excellence. A government program is concerned with volume of treatment and discourages more durable but costly services. Under private enterprise, variations in skill are recognized and a range of quality is available. Government control conduces to a lower quality than would otherwise prevail.

Efficiency: Under government programs, there is a loss of dental practice time for administration, completing forms, corresponding with officials, attending appeal sessions, and so forth.

Distribution — Geographic: The British government has not influenced the geographic distribution of dentists; therefore, disparities in dentists/population ratios are greater than under private enterprise.

Distribution — Age and Priority Groups: Although the British government has attempted in several ways to increase the demand for and the supply of children's dentistry, the incentives have not been effective.

Distribution — Income: The proportion of personal income spent on dentistry is less in the United Kingdom than in Canada or the United States. A distinction should be made between those people who cannot af-

ford dental care and those who prefer to spend money on other things.

Progressiveness: Evidence of private enterprise's greater progressiveness is the popularity of postgraduate and refresher courses and dental study clubs in the United States compared with the United Kingdom. Patient education suffers under government enterprise which is reluctant to pay for intangibles.

Stability: The British government has used its power as the main purchaser of dental services to reduce fees thus creating unsettled conditions and dissatisfaction in the profession.

A Comparison of Effectiveness in Interproximal Plaque Removal of an Electric Toothbrush and a Conventional Hand Toothbrush

G. K. Powers, G. J. Tussing and R. E. Bradley. *Periodontics* 5:37, January-February 1967.

A clinical study comparing the effectiveness of a leading electric toothbrush and a conventional hand toothbrush in cleansing interproximal tooth surfaces was conducted. The mean visit interproximal plaque score for the entire mouth was lower for the electric toothbrush when compared with the conventional hand toothbrush. This difference was statistically significant at the 0.01 level of confidence. A comparison of the plaque scores for buccal, middle and lingual subdivisions of the interproximal tooth surface also revealed a statistical superiority for the electric toothbrush. Under the conditions of the study, the electric toothbrush was superior to the conventional hand toothbrush in cleansing the exposed tooth surface of 'open' interproximal spaces.

Metastasis to the Mandible

S. C. Banerjee. *Oral Surg.* 23:71, 1967.

Certain malignant neoplasms tend to metastasize in bone. Common sites for such lesions are the bronchus, thyroid, breast, prostate gland, and kidney. Secondary invasion from the gastro-intestinal tract and uterine malignancy have also been reported. Involvement of the jaw bones by a metastatic tumour from a distant primary growth is by no means rare. The jaws must always be considered in a differential diagnosis. The incidence of jaw involvement in skeletal metastasis cannot be accurately assessed because a thorough radiological search for each lesion in suspected cases is impractical, expensive and time consuming. Moreover, metastatic tumours in jaw bones are difficult to recognize because (1) the lesions are centrally located in the bone; (2) there are few sub-

jective symptoms, except at a late stage; and (3) radiographs may be, and usually are, non-specific. Consequently, metastatic invasion may be erroneously diagnosed as cysts, benign tumours, or as lesions of infective and traumatic origin.

A Two-Part Haemorrhage-Control Plate

J. H. Sowray. *Brit. Dent. J.* 122:68, 1967.

The author describes a splint or plate designed to control postextraction bleeding. The tooth to be extracted is first cut from a plaster model so that sufficient space is left under the plate in case a haemostatic dressing is required. Next, a small plate to cover the socket is made of clear acrylic resin. It should have sufficient retention to stay in place for the short time required for cleaning or adjusting a second acrylic retention plate. The latter resembles a partial denture, fits over the socket plate, and is retained by suitable clasps. Its function is to cover and retain the small socket plate. A small hole is drilled through the retention plate in the centre of the area covering the socket plate. An amalgam plugger or similar instrument inserted through this hole helps to support the socket plate while the retention plate is cleaned or adjusted. This two-part haemorrhage-control plate permits cleaning and adjustment of the major retention plate without disturbance of the socket area.

The Whistle and Swish Sound in Denture Patients

M. M. Silverman. *J. Prosth. Dent.* 17:144, 1967.

Abnormal phonetic sounds are often noted in patients wearing complete, fixed, or removable partial dentures that involve the anterior teeth. The common abnormal sounds in denture patients are the whistle and swishing sounds. The aetiology of these sounds is closely related and the treatment is similar. All abnormal sounds can be avoided by the use of pre-extraction records for patients who previously had normal speech, and by the replacement of missing teeth in exactly the same positions that the natural teeth had occupied. When pre-extraction records are not available, the anterior teeth can be placed in their proper anteroposterior position through the use of the *th* sound. The proper vertical overlap is established by the use of the closest speaking space, which is also the phonetic measurement for vertical relation of occlusion. Ideally, artificial teeth should be located in the same position as the natural teeth they replace for proper phonetics.



National Convention

Vancouver Convention Opens June 26

It's that time again! In just a few months from now dentists from all parts of the nation will converge on the Vancouver Hilton Hotel to attend the 1968 national convention of the Canadian Dental Association. While their wives sample the scenic delights of Canada's west coast metropolis, most of the dentists will be in the convention halls listening to scientific essays, symposia and clinical lectures, observing table clinics and commercial exhibits, or watching scientific motion pictures.

Those dentists who guide the CDA as members of the Board of Governors will be in session June 24-26. During meetings of the Board's reference committees any dentist may comment on the matters under discussion.

The national convention, which runs from June 26-29, will be keyed to the theme 'Restorative Dentistry.' The principal essayist will be G. D. Stibbs, a former Canadian who is now professor of operative dentistry and fixed partial dentures, chairman of the Department of Operative Dentistry and director of the dental clinic at the University of Washington, Seattle. Three other scheduled essayists are Saul Schluger, a noted American periodontist who currently serves as director of graduate dental education at the University of Washington; Rex Ingraham, professor and chairman of the Department of Operative Dentistry at the University of Southern California, Los Angeles; and S. J. Kloehn of Appleton, Wisconsin, who will deliver the 1968 George Wellington Grieve Memorial Lecture.

The scientific program will also feature a round table discussion on occlusion. Prominent experts in operative dentistry, periodontics, orthodontics and prosthodontics will participate.

dontics are expected to participate in this conference.

All CDA sections except the Canadian Society of Oral Surgeons will hold meetings in Vancouver. Similar gatherings are planned by dental hygienists and dental assistants.

The local committee has also arranged an outstanding entertainment schedule. The social highlight will be the President's Fiesta at the Vancouver Hilton Hotel, Saturday, June 29. Additional social events include: a Registration Cocktail Party at the fabulous Bayshore Inn on Wednesday June 26; a Paul Bunyan Salmon and Beef Barbecue at HMCS Discovery in the heart of Vancouver's famed Stanley Park, Thursday June 27; and a 'China-town Night' on Friday June 28—an evening in the second largest Chinese community outside the Orient. Ladies' entertainment includes breakfast with a celebrity speaker at the Bayshore Inn, Thursday June 27, and a Champagne Brunch and Fashion Show at the Queen Elizabeth Theatre, Friday June 28.

More complete details will appear in the 'Preliminary Program' to be published in the March Journal.

— to delegate to persons over whom he exerts effective supervision and control, such duties as do not require for their performance the professional knowledge and skill of the dentist . . . ”

The resolution asks provincial licensing boards to implement these principles. It also urges that the doctrine of the ultimate responsibility of the dentist be clearly and unequivocally enunciated, and that any serial listing of services which may be legally performed by auxiliary personnel be eliminated.

Another resolution proposed that the Canadian Dental Nurses and Assistants Association give further consideration to methods whereby a national certification program for dental assistants may be introduced under the aegis of the CDNAA. This resolution also urged the CDNAA to consult with the Auxiliary Services Committee and the Council on Education of the Canadian Dental Association regarding the development of the certification program and the establishment of minimum requirements and accreditation of formal training courses for dental assistants. A companion resolution asks the Council on Education to create a mechanism for the accreditation of such courses.

The Association

Auxiliaries Committee Adopts Resolution on Delegation of Duties

The CDA Auxiliary Services Committee, which held its annual meeting in Toronto January 18-19, has approved a resolution⁽¹⁾ reaffirming the dentist's responsibility for treatment rendered to the public and⁽²⁾ asserting his right to delegate duties that do not require the knowledge and skill of a dentist. The resolution states:

“ . . . that it is the dentist . . . who must be responsible for the standards and quality of dental treatment rendered to the public; and . . . that in assuming this responsibility it is the right of a dentist — under the regulatory oversight of the licensing authority by which he is licensed

International Items

Symposium on Hospital Dentistry in Valhalla, NY

“Utilization of the Hospital by the Dentist” is the theme of a three day symposium to be held at Grasslands Hospital, Valhalla, New York, May 3-5. Sponsored by the Council on Hospital Dental Service of the Dental Society of the State of New York, the meeting features a team of eminent physicians, dentists and auxiliary personnel who will discuss and demonstrate hospital dental procedures from the time of a patient's admission to his discharge.

George Graham, president of the American Hospital Association will discuss the "Viewpoint of the American Hospital Association on Dentistry" and Col. C. C. Alling, chief of the Oral Surgery Service at the Walter Reed Army Medical Centre, Washington, will speak on "The Hospital Dentist." J. E. Fauber, secretary of the Council on Hospital Dental Service, American Dental Association, has chosen "Tomorrow's Concept on Hospital Utilization by the Dentist" as his subject.

Topics of special sessions include "The Modern Hospital Looks at the Dentist," "Who Goes to the Hospital for Dentistry," "Hospital Procedure" and "Anaesthesia for the Dental Patient." Videotape demonstrations will also be conducted.

Further information may be obtained by writing to M. M. Maslansky, Grasslands Hospital, Valhalla, NY 10595, USA or George Minervini, 9th District Dental Society, 18 Maple Ave., White Plains, NY 10601, USA.

Chicago Conference on Care of Oral Cancer Patients in June

An interprofessional conference of the dental and medical professions to coordinate and disseminate the latest findings on the care of oral cancer patients will be held in June at American Dental Association headquarters in Chicago. Cost of the meeting will be shared by the US Department of Health, Education and Welfare, the American Cancer Society and the ADA.

Five study panels will review current problems and data on oral cancer, consider new approaches and techniques, and attempt to reconcile conflicting recommendations of the areas of management of teeth; maxillofacial prostheses, stents and splints; management of bone; management of soft tissue and maintenance of oral and general health.

Oral Biology Conference in Copenhagen, July 15-17

The Fourth International Conference on Oral Biology will be held in Copenhagen,

Denmark, July 15-17. The conference is sponsored by the International Association for Dental Research.

The program will feature "The Biology of Interfaces" under the following themes: interfaces of the oral epithelium with the external environment and the underlying connective tissue; development of the tooth germ as influenced by its surrounding tissue or media; and biology of the enamel-saliva interface.

Attendance at the conference is limited. Further information may be obtained from Mogens Skougaard, Royal Dental College, 4 Universitetsparken, Copenhagen, Denmark.

Dr. Blackerby Named President of Kellogg Foundation

A dentist, P. E. Blackerby, has been elected president and chief operating officer of the W. K. Kellogg Foundation, Battle Creek, Michigan. Dr. Blackerby was assistant general director of the Foundation from 1956 to 1965 and vice-president of programs from 1965 until his present appointment.

The Kellogg Foundation, which administers funds for the support of worldwide educational, agricultural and health activities in the public interest, has aided numerous Canadian dental projects since 1942. A program at the University of Toronto showing dental students how to use chairside assistants more effectively is a recent example of a Foundation-aided project.

Canada and the Provinces

CFDE Book of Living Memorials Gets New Dress

Clad in its beautiful new leather binding, the Canadian Fund for Dental Education's Book of Remembrance was displayed for the first time at the December CFDE's Public Information Committee meeting. The symbolic cross on the former binding has been replaced by the insignia of the Fund tooled in English and French in gold leaf. When the book

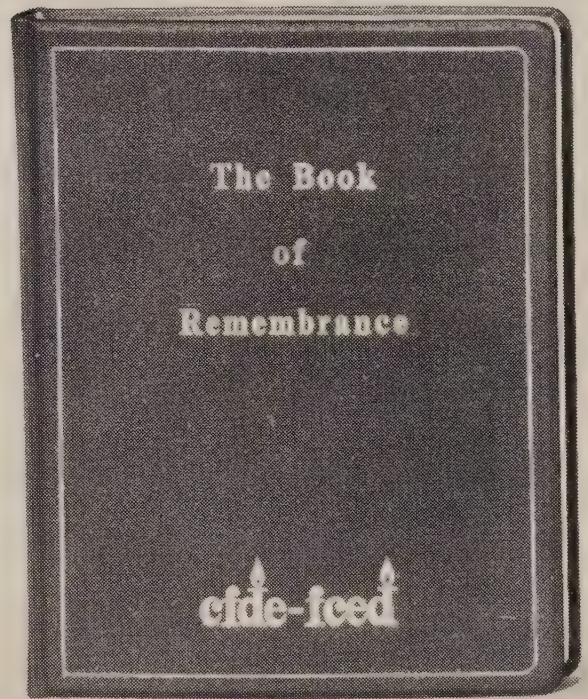


The Canadian Fund for Dental Education's Book of Remembrance was displayed in its new leather binding last December. Inspecting the book are (l. to r.) CFDE Chairman J. D. McLean; B. Isabel Brown, director of the CDA Bureau of Economic Research; CDA Secretary W. G. McIntosh; CDA President W. P. Munsie; CFDE Executive Director D. M. McDonald; and (seated) W. J. Spence.

is open, it is more than two feet wide. The illuminated title page is followed by pages on which are inscribed the names of persons honoured by a CFDE Living Memorial contribution. The book is on permanent display in the CDA library.

CFDE Chairman J. D. McLean called it "a most attractive book and very fitting to the purpose it serves." Dr. McLean said that contributions to the CFDE Living Memorial Fund honour deceased friends and relatives and assure the continued excellence of Canadian dentistry.

Living Memorial contributions should be sent directly to the Executive Director, CFDE, 234 St. George St., Toronto 5, Ont. Contributions should state the name of the person being honoured, the name of the person to whom the Memorial Card should be sent, and the donor's name. All contributions are promptly acknowledged and are deductible for income tax purposes.



Canadian Dental Schools

Dr. Hibberd Joins Toronto Faculty

J. H. Hibberd joined the staff of the Faculty of Dentistry, University of Toronto, on January 1 as professor of restorative dentistry. Dr. Hibbard comes from Melbourne, Australia, where he earned a

Examinations of the Royal College of Dentists of Canada

Part I (Basic Sciences) Examination.—

This examination, scheduled for September 16-21, 1968, will probably be held in regional centres across Canada. Applications for this examination must be received by the registrar-secretary before March 31, 1968. A cheque for \$100 must accompany the application. The entire fee will be returned if the application is not accepted by the Council of the College. The total fee less \$25 will be refunded if the application is accepted but the candidate withdraws before July 31, 1968.

Part I Supplemental Examination.—

This examination will also be held September 16-21, 1968. Candidates who were not entirely successful in September 1967 must write the supplemental examination in September 1968 if they wish to complete the Part I Examination. A \$50 re-examination fee is required. Written notification of the intention to write this examination, together with the \$50 fee and indication of the supplemental subject the candidate desires to write, must be received by the registrar-secretary before March 31, 1968.

Part II Examination (Oral).—This examination for candidates who were successful in the Part I Examination will be held November 28-30, 1968. Applications for this examination must also be received by the registrar-secretary before March 31, 1968. Eligibility requirements for this examination are: (1) successful completion of the Part I Examination, (2) submission of the required case histories and so forth, and (3) the passage of five years since

the candidate began his graduate training. Candidates who are eligible for this first Part II Examination have already paid the full examination fee. However, in future, there will be a \$100 fee for the Part I Examination and a \$100 fee for the Part II Examination.

A candidate who passes the Part I Examination in September and who has spent the minimum of five years since he began graduate training may proceed to the Part II (Oral) Examination in November of the same year if he so notifies the registrar-secretary before March 31, 1968. A cheque for \$200 must accompany such applications. The entire fee will be returned if the application is not accepted. The total fee less \$25 will be refunded if the application is accepted but the candidate withdraws before July 31, 1968.

Candidates who fail the Part I Examination in September will not be eligible to proceed to the Part II Examination in November. The \$100 portion of their Part II Examination fee will be returned.

A candidate who passes the Part I Examination in September and then withdraws from the Part II Examination in November will forfeit the Part II Examination fee unless Council finds just cause for the withdrawal. In that case \$75 out of the \$100 will be returned to the candidate.

Application forms and further information may be obtained from J. E. Speck, Registrar-Secretary-Treasurer, Royal College of Dentists of Canada, Suite 614, 170 St. George St., Toronto 5, Ont.

BDS degree at Melbourne University in 1949 and a master's degree in 1957.

During the 1959-60 session Dr. Hibberd attended the University of Toronto, receiving a DDS degree in 1960. Since 1960 he has continued in practice in Melbourne and served as a part-time teacher at the University of Melbourne.

Royal Canadian Dental Corps

Col. Covey and Lt.-Col. Snidal Appointed Queen's Honorary Dental Surgeons

The appointments of Col. G. R. Covey and Lt.-Col. M. J. Snidal as Queen's

Honorary Dental Surgeons were recently approved by Her Majesty the Queen. Col. Covey is commandant of the Royal Canadian Dental Corps School in Camp Borden, Ontario. Lt.-Col. Snidal is militia dental adviser, Prairie Region, and is based in Winnipeg.

Appointment as Queen's Honorary Dental Surgeon is an honour granted to selected dental officers in recognition of distinguished service. It is held for 'tenure of office.'



Col. G. R. Covey



Lt.-Col. M. J. Snidal

Promotion, Retirement

Canadian Forces Headquarters recently announced the promotion of **W. C. Waid** from major to lieutenant-colonel. Lt.-Col. Waid has been appointed militia dental adviser, Ontario Region. He is presently serving with the Toronto Service Battalion.

Also announced was the retirement of **Capt. J. M. L. Rochefort**.

Economics

First Multi-state Dental Service Prepayment Program Announced

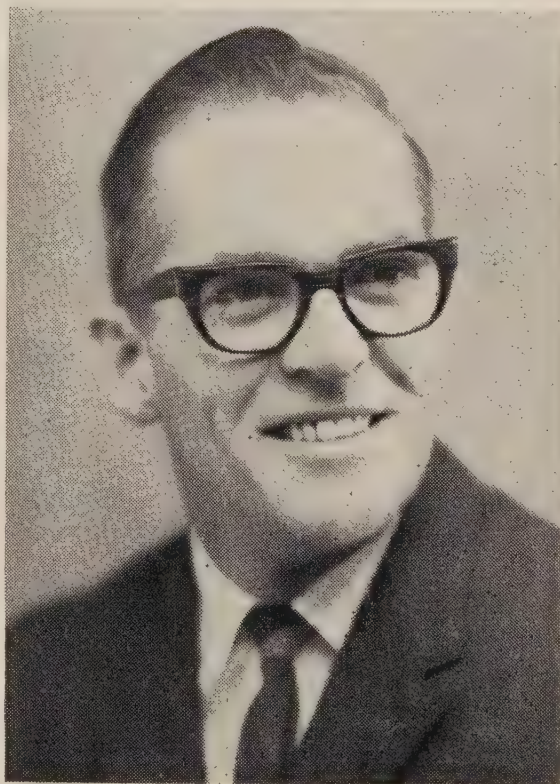
The US National Association of Dental Service Plans has announced the negotiation of the first multi-state dental prepayment program. The group purchaser is the Northwest IAM (International Association of Machinists) Benefit Trust. The plan, which became effective November 30, covers IAM members and their families in an eight-state area comprised of Alaska, Colorado, Idaho, Montana, Oregon, Utah, Washington and Wyoming.

The program, with an initial contract period of three years, will apply the 'incentive' concept to a table of allowances. When a covered member first uses the program, a 70/30 co-payment formula applies. Thereafter, so long as dental care is sought each year, the patient's financial responsibility drops 10 per cent annually. Thus, there is an economic incentive to seek dental treatment regularly. The incentive approach applies to all basic services; prosthetic services,

however, are covered on a constant 50/50 basis.

US Congress Passes Social Security Bill; Children's Dental Program Approved

The American Congress, on December 15, passed the Social Security Amendments Bill of 1967. The bill authorizes special project grants for the dental health of children "who would not otherwise receive it because they are from low-income families or for other reasons beyond their control." These provisions



R. B. DeWare, Moncton, was recently elected president of the New Brunswick Dental Society. He succeeds the late Dismas Boudreau, Edmundston.

accord with recommendations contained in the American Dental Association's Children's Dental Program.

US federal grants for dental projects will be awarded to state or local health agencies and non-profit institutions or organizations. The bill will establish a four year program beginning July 1, 1968. Federal participation will be limited to 75 per cent of the costs of such projects. It is expected that the first year program will involve about 100,000 needy children and that the first year cost will be about \$5 million.

US Report Predicts Health Crisis

The recently published report of the US National Advisory Commission on Health Manpower states that the nation's health system is approaching a crisis—one which will probably worsen unless major changes are made. The commission emphasized throughout its report that government alone cannot solve the critical problems.

Some of the problems cited in the report are: impersonal attention for the patient; long waits to see a doctor; a shortage of hospital beds and services; uneven distribution of care; and costs rising sharply "from levels that already prohibit care for some and create major financial burdens for many more."

Included in the 58 major changes recommended by the commission are: refresher courses for physicians and dentists or periodic examinations for renewal of licences; incentive grants to dental and medical schools to increase the output of dentists and physicians; direct financial aid to dental and medical students to make available "student loans to cover the full costs of tuition and living expenses;" federal funding of university programs to develop new categories of health professions; and development of effective peer review procedures for maintaining high quality health and medical care by professional societies, health insurance organizations and government.

The commission noted that "the gap in training between professionals and ancillary personnel is increasing. In medicine

the physician with 12 years' training after high school has to rely mainly on the nurse who may have had as little as two years' professional education. There is a smaller but similar gap between dentists and dental hygienists . . ."

Research

Dr. Arnold, Fluoride Researcher, Dies

F. A. Arnold, Jr., former chief dental officer of the US Public Health Service and assistant surgeon general, died December 1, 1967, in San Francisco at the age of 57.

Dr. Arnold, who was also a pioneer in the study of fluorides and their effect on teeth, retired last September from his Public Health Service post to become coordinator of research at the School of Dentistry, University of the Pacific. Prior to assuming his position with the USPHS in February 1966, Dr. Arnold had served as director of the National Institute of Dental Research in Bethesda, Maryland, from 1953.

Fluoridation

Fluoridation Gains, Losses

Four more Alberta municipalities voted recently in fluoridation plebiscites. Hinton, Westlock and Grand Centre approved the measure; Lac La Biche rejected it.

Town councils in Petrolia, Ont., and Chateauguay, Que., voted for fluoridation. Petrolia supplies water to Watford, Wyoming and parts of Sarnia, Enniskillen and Plympton townships. The necessary installation in Chateauguay is expected to cost \$6,000.

Fluoridation was turned down in the Ontario municipalities of Woodstock, Kitchener and Fort William.

Public Health

Dr. Curry Named Saskatchewan Dental Director

T. M. Curry, Calgary, was recently appointed director of dental health services

for the province of Saskatchewan. He succeeds H. A. Grimsrud who resigned last year.

Born in Ireland, Dr. Curry graduated from the dental school of University College, Dublin, with a bachelor's degree in dental surgery. Following two years of practice in London, England, and one year in Oslo, Dr. Curry came to Canada where he spent a year with the Newfoundland health department. In 1961 he graduated from the University of Toronto with a DDS degree. After practising for one year in Ontario he was appointed city dental health officer in Calgary.

Deaths

Boudreau, Dismas. 54. Edmundston, NB. Université de Montréal, 1951. 5-12-67. Survécu par Irène (épouse); Mme Eugénie Boudreau (mère); Albenie, Bud et Zoël (frères); et Mme Gérard Gaudet, Mme Aurelien Gaudet et Mme Hugh Pattingalle (soeurs).

Calkin, Victor Clyde. 70. Washington, DC. Dalhousie University, 1923. March 1967. Survived by Martha (wife) and Melvin (son).

Croft, L. H. 77. Chester, NS. Royal College of Dental Surgeons of Ontario, 1920. 31-12-67. Survived by Mrs. L. H. Croft (wife) and Mrs. Karl Karlsen, Mrs. Donald Tower and Mrs. Paul Spates (daughters).

Graham, Frederick Roy. 83. Toronto (formerly Kitchener, Ont.). Baltimore College of Dental Surgeons, University of Maryland, 1905. 24-12-67. Survived

by Emily Jean (wife); Ted (son); Mrs. C. Jack, Mrs. J. S. Pink and Mrs. J. C. B. Russell (daughters); and Mrs. P. Graham-Raad (sister).

Harvie, Dalton Clark. 71. Elmvale, Ont. Royal College of Dental Surgeons of Ontario, 1925. 2-1-68. Survived by Jessie Ann (wife); Mrs. G. I. Russell (daughter); Corbett and Blake (brothers); and Marie (sister).

Layng, Richard Holmes. Saskatoon, Sask. 10-12-67. Northwestern University, 1919.

Paul, Jack Lionel. 49. Toronto. University of Toronto, 1949. 9-12-67. Survived by Jessie (wife).

Schwetz, William Stephen. 32. Cooksville, Ont. University of Toronto, 1958. 16-12-67. Survived by Claire (wife); Blake (son); Mr. and Mrs. Stephen Schwetz (parents); and Eugene (brother).

Awards and Honours

Two Saskatchewan dentists were recently honoured by the College of Dental Surgeons of Saskatchewan. **M. Robertson**, Indian Head, was awarded an honorary life membership and **L. D. Haselton**, Saskatoon, was presented with a 'Forty Year Plaque.'

K. M. Phillips, Welland, and **E. J. Wright**, St. Catharines, were recently accorded honorary life memberships by the Niagara Peninsula Dental Association. Both Dr. Phillips and Dr. Wright are past presidents of the association.

Men at some time are masters of their fates;
The fault, dear Brutus, is not in our stars,
But in ourselves, that we are underlings.

—*Shakespeare.*

in memoriam

F. Douglas Derrick

Douglas Derrick, who died in England on December 8 following a lengthy illness, was a much loved member of the Canadian and American dental fraternity in Europe. Dr. Derrick was born in Clarenceville, Quebec, in 1896. He was educated at LaChute Academy and studied dentistry at McGill University, Montreal, graduating in 1917. Being under the age of 21 and therefore unable to obtain a licence to practise, Dr. Derrick joined an artillery regiment in the Canadian Expeditionary Force. On reaching maturity a few months after his arrival in England, he transferred to the Canadian Army Dental Corps where he served as a captain until his return to Canada in 1919.

Dr. Derrick practised in Montreal and Moose Jaw, Saskatchewan, for the next 15 years. In 1934 he returned to London where he studied at the Royal Dental Hospital and earned the licence in dental surgery of the Royal College of Surgeons of England. He then opened a practice at 140 Park Lane, London, remaining there until his retirement in 1962.

Doug, as he was affectionately known by his many friends, conducted a most successful practice for nearly 30 years. Soon after he began to practise in London he started to take an active part in the American Dental Society of London. During World War II he organized many successful meetings of this society in conjunction with the Canadian and American military dental services.

The American Dental Society of Europe became the great love of his professional life. Immediately after World War II, together with a few other members in London, he succeeded in re-

organizing the society. He did everything possible to promote its aims and objectives — to bring about some form of reciprocity between North American and English degrees.

In 1948 he was the first Canadian graduate to be honoured with a fellowship when the Royal College of Surgeons of England established its Faculty of Dental Surgery. He was also active in a considerable number of professional and lay organizations, particularly those related to Canada.

Dr. Derrick leaves his wife, Enid, a daughter and a son, Donald, who carries on his practice in London.

D. W. Gullett

John M. Ridge

Dr. John Ridge was practically unknown in the dental world except to the classes of undergraduate students and teachers at the Faculty of Dentistry, University of Manitoba, from 1959-1964. Known by his Indian name of 'the Silver Fox,' this man of high principle, with the twinkling eyes and wry sense of humour, displayed a spirit of humanity and sensibility to all who had dealings with him. His deep knowledge of men and medicine brought a simplicity and directness to his teaching which startled the uninitiated yet invigorated those whom he knew. As a member of the Faculty Council he contributed to university affairs the advice and wisdom gained from many years of experience. His sudden death was a great shock to his many friends from all walks of life and our deepest sympathy goes to his wife and five daughters.

J. R. Trott

Congrès national

Mesdames et Messieurs, allez dans l'Ouest!

C'est de nouveau l'époque! Dans quelques mois, les dentistes de tout le pays se dirigeront vers Vancouver pour assister au congrès national de l'Association dentaire canadienne, pour 1968. Pendant que leurs épouses admireront la métropole de la côte ouest, la plupart des dentistes, dans les salles du congrès, écouteront des exposés scientifiques, prendront part à des colloques et assisteront à des conférences cliniques. Ils observeront des démonstrations cliniques, des expositions commerciales ou verront des films scientifiques.

Les dentistes qui dirigent l'ADC, en tant que membres du Conseil des Gouverneurs, se réuniront du 24 au 26 juin. Au cours des réunions des comités consultatifs du conseil, tout dentiste peut donner son avis sur les sujets traités.

Le congrès national, qui aura lieu du 26 au 29 juin, aura pour thème principal "la dentisterie restaurative". L'orateur principal sera le Dr G. D. Stibbs, un ancien Canadien qui est maintenant professeur de dentisterie opératoire et de prothèse partielle fixe à la faculté dentaire de l'Université de Washington, à Seattle. Il y aura trois autres conférenciers: le Dr Saul Schluger, spécialiste en paradontologie qui est actuellement directeur de l'enseignement dentaire post-gradué à l'Université de Washington; le Dr Rex Ingraham, professeur et chef du département de dentisterie opératoire à l'Université Southern California, de Los Angeles et le Dr S. J. Kloehn d'Appleton, Wisconsin qui donnera la conférence George Wellington Grieve, pour 1968.

Le programme scientifique comprendra également une discussion dirigée sur l'oc-

clusion. Des experts éminents en dentisterie opératoire, en périodontie, en orthodontie et en prothèse participeront à la conférence sur l'occlusion.

Toutes les sections de l'ADC, sauf la "Canadian Society of Oral Surgeons" tiendront des réunions à Vancouver. Les hygiénistes et assistantes dentaires se réuniront également.

Le comité local a organisé aussi un programme de réjouissances exceptionnel, dont le clou sera la Fiesta du Président, à l'hôtel Vancouver Hilton, le samedi 29 juin. Parmi les autres distractions, citons un cocktail à la fameuse "Bayshore Inn", le mercredi 26 juin, un "barbecue" de bœuf et de saumon, au HMCS Discovery, dans le fameux parc Stanley de Vancouver, le jeudi 27 juin et une "soirée chinoise" le vendredi 28 juin, dans la deuxième ville chinoise du monde, en dehors de l'Orient. Nous offrirons à nos invitées féminines, le jeudi 27 juin, à la "Bayshore Inn", un petit déjeuner auquel l'invité d'honneur sera une célébrité, ainsi qu'un "brunch" au champagne et un défilé de mode au Théâtre Queen Elizabeth, le vendredi 28 juin.

Le programme préliminaire qui sera publié dans le numéro de mars vous donnera des renseignements plus détaillés.

L'Association

Les dentistes sont priés de présenter leurs propres programmes

Le président de l'ADC, le Dr W. P. Munsie a demandé instamment aux dentistes de prendre l'initiative et de proposer leurs propres programmes de soins dentaires, étant donné l'imminence de Medicare (qui

devrait commencer dans tout le Canada, le 1er juillet). Dans un discours au Montreal Dental Club, le 30 octobre 1967, il a déclaré que si les dentistes voulaient participer à la mise au point du programme final, il fallait qu'ils fassent des propositions au Gouvernement.

La Colombie britannique a déjà un plan à l'étude, aux termes duquel les enfants seraient couverts les premiers, a dit le Dr Munsie, et il a ajouté qu'un programme qui commencerait par les enfants était la meilleure façon de procéder, pour fournir éventuellement des soins à la population toute entière.

Etant donné la date incertaine à laquelle une assurance dentaire commanditée par le Gouvernement, serait incluse dans Medicare, le Dr Munsie a demandé aux dentistes de prendre l'initiative et de mettre au point des programmes.

Le Dr Munsie est également président de l'équipe qui dirige la mise sur pied et la promotion des programmes dentaires de l'ADC, pour les enfants.

Le président Munsie conseille d'utiliser plus d'auxiliaires dans la pratique privée

Le président de l'ADC, le Dr W. P. Munsie, a réitéré son appel pour établir un programme dentaire commandité par la profession, lorsqu'il s'est adressé à l'Académie de dentisterie de Toronto, le 23 novembre. Il a déclaré que les dentistes, par l'intermédiaire de l'Association dentaire canadienne, devraient persuader les autorités nationales qu'ils étaient en mesure d'offrir des soins dentaires efficaces, pour les Canadiens, en se servant de plus d'auxiliaires, dans la pratique privée.

Le Dr Munsie a parlé des dangers et des opportunités que présentent la loi sur les soins médicaux au Canada et le rapport de la Commission Hall. "Medicare" universel, basé sur les normes établies par Ottawa est imminent parce qu'aucune province ne peut, pendant longtemps, refuser des subsides fédéraux provenant d'un revenu consolidé. Il a ajouté que la dentisterie, en tant que facteur de l'hygiène totale, en ferait partie avant longtemps.

Le Dr Munsie a aussi parlé du risque

de fragmentation que présente le rapport Hall. La Commission a recommandé que les enfants soient traités par des personnes qui ne soient ni dentistes, ni associés avec les praticiens privés. Ce sont des personnalités respectées du public qui ont proposé cette solution, a ajouté le Dr Munsie et elle pourrait être appliquée si nous ne montrons pas, comment les dentistes et leurs auxiliaires peuvent résoudre le problème, dans le cadre de la pratique privée.

Canada

Le Collège royal des chirurgiens-dentistes offre de coopérer avec d'autres organisations dentaires

Un porte-parole du Collège royal des chirurgiens-dentistes du Canada a réaffirmé que le Collège a l'intention d'échanger des représentants avec l'Association dentaire canadienne "pour que les deux organisations puissent garder des contacts étroits." Dans un discours sur la spécialisation, prononcé à la conférence de la Société dentaire de l'Est de Toronto, le 20 novembre, le Dr J. E. Speck, secrétaire du Collège royal a déclaré que le Collège n'avait pas l'intention de s'isoler, bien qu'il ait été établi comme organisation autonome par l'ADC. "Nous voulons coopérer avec l'ADC, les associations-membres, les associations de spécialistes et les bureaux d'accréditation afin de donner tout le prestige auquel ils ont droit aux dentistes qui ont passé des examens avancés en dentisterie et qui ont réussi les examens du Collège", a ajouté le Dr Speck.

Le Dr Speck a dit que pour établir cette représentation officielle, le Collège avait l'intention d'inviter le président du Conseil de l'enseignement dentaire de l'ADC et le président du comité des spécialistes et de la spécialisation de l'ADC à assister aux réunions de son conseil. Il a accepté également de présenter des communications aux réunions du conseil des Gouverneurs de l'ADC.

Le Dr Speck a déclaré que le Collège royal des chirurgiens-dentistes du Canada est pleinement conscient que c'est aux

bureaux d'accréditation provinciaux que revient la prérogative de décerner les certificats de spécialisation et que le Collège n'avait ni le désir de changer cette situation ni l'autorité pour le faire. "Cependant, a-t-il ajouté, deux bureaux d'accréditation provinciaux nous ont demandé s'ils pouvaient se servir en partie des résultats des examens du Collège royal comme critère, pour décerner les certificats de spécialiste dans leurs provinces.

"Ce Collège, a continué le Dr Speck, "désire coopérer avec les bureaux provinciaux si ceux-ci le désirent et serait prêt, à leur demande, à leur transmettre les résultats des examens du Collège pour qu'ils en usent comme bon leur semblera. L'accréditation resterait la responsabilité des bureaux, dont l'autorité ne serait limitée en rien et qui traiteraient les standards du Collège royal comme ils le voudraient." D'autre part, a-t-il expliqué, le Collège royal est prêt, non à accréditer, mais à accorder le statut de membre aux dentistes qui remplissent les conditions établies par le Collège, en ce qui concerne leur formation graduée avancée, et qui ont passé les parties I et II des examens du Collège."

Un dentiste de Hamilton gagne une bourse pour étudier les cabinets dentaires

Le Dr D. G. Coburn, de Hamilton, a reçu récemment la somme de \$8,875, du Ministère fédéral de l'Industrie, pour faire des recherches sur l'équipement des cabinets dentaires et sur les cabinets eux-mêmes.

Ce dentiste s'intéresse depuis longtemps aux progrès technologiques tels que travail sous jet d'eau, la conception des chaises et la pratique dentaire en équipe. Il se servira de son subside pour mettre au point et essayer des salles d'opération dentaire d'une conception nouvelle, pour étudier l'augmentation du volume des soins et voir comment épargner de la fatigue aux dentistes. Il se servira de la photographie mémodynamique pour analyser la diversité des techniques opératoires dans différents cabinets dentaires. Les conclusions du Dr Coburn devraient permettre d'établir des normes qui amé-

lioreront les locaux utilisés pour la pratique dentaire.

Le Dr Coburn sera aidé dans ses travaux par David Jenkins, dessinateur industriel de Hamilton, Laurie McIntosh, dessinatrice industrielle de Toronto, Z. B. Nyeste, dentiste de Montréal, pionnier de la photographie mémodynamique, d'Edmund Reid, producteur de films de Toronto et de plusieurs dentistes volontaires.

Organismes dentaires

Cours sur les couronnes et les bridges à Montréal, du 25 au 27 avril

La Société dentaire de Mont-Royal et le chapitre des anciens élèves de la fraternité Alpha Omega, de Montréal, offriront un cours à inscription limitée du 25 au 27 avril. Ce cours sur la prosthodontie, couronnes et bridges, aura lieu au Strathcona Medical Building de la faculté dentaire de l'Université McGill. Il sera dirigé par Ray Contino, au niveau gradué. La télévision en circuit fermé servira aux démonstrations. Les chèques couvrant les droits d'inscription de \$125 doivent être faits à l'ordre de "Crown & Bridge Course in Trust" et envoyés à H. Ptack, 1538 Sherbrooke St. W., Suite 903, Montréal, P.Q.

Economie

L'ADA approuve le plan pour les auxiliaires

L'American Dental Association, au cours de sa réunion annuelle du 29 octobre au 2 novembre 1967, a approuvé comme ligne de conduite que "les sociétés dentaires des états et les bureaux d'examen des états considèrent la possibilité de recommander la révision des lois gouvernant la pratique dentaire (1) pour donner aux bureaux d'examen l'autorité d'établir des règlements pour utiliser de façon plus efficace les services des hygiénistes et des assistantes dentaires et (2) pour éliminer de leurs statuts la liste restrictive des fonctions que peuvent exercer les hygiénistes dentaires".

Minor Tooth Movement in General Practice

Leonard Hirschfeld et Arnold Geiger. Ed.
2. St. Louis, C. V. Mosby Company, 1966.
637 p. Illus. \$17.50

Tout nouveau livre tient sa valeur de ce qu'il fournit des connaissances inédites à ce jour, ou de ce qu'il groupe sous un même couvert du matériel que la majorité des lecteurs ne pourraient rassembler qu'à force de travail de longue haleine, ce que peut difficilement faire le dentiste aux prises avec ses problèmes quotidiens.

Hirschfeld et Geiger n'apportent rien de nouveau mais présentent sous une forme différente ce qu'on peut déjà trouver dans d'autres publications. La première partie, soit les chapitres un à sept, qui couvrent les connaissances pré-requises à l'orthodontie, insiste très souvent sur les échecs possibles si l'on ignore certaines caractéristiques du diagnostic. Ceci devrait intéresser le clinicien sérieux, et celui qui veut se renseigner devrait y consacrer plusieurs heures d'étude. Cependant, cette section est bien incomplète et je doute que le praticien puisse établir une distinction relativement sûre entre les cas qu'il peut traiter et ceux pour lesquels il devrait s'abstenir.

La section clinique du livre offre plusieurs méthodes de traitement et plusieurs dessins d'appareils que peut employer avec avantage le clinicien qui a déjà une certaine expérience. Cependant, trop de ces appareils reposent sur l'emploi de bandes élastiques placées autour des dents. Nous avons vu trop de dommages aux tissus périodentaires causés par une telle pratique pour en recommander l'emploi. La description d'appareils fixes et à bagues multiples fait de cette section du livre un chapitre utilisable seulement par un praticien averti et réellement intéressé à l'orthodontie. Plusieurs des méthodes de traitement suggérées sont trop compliquées pour le dentiste qui ne fait que deux ou trois cas d'orthodontie par an.

Le texte est bien classifié et bien écrit. Il couvre aussi bien l'orthodontie des adultes que l'orthodontie infantile. Ce n'est cependant pas un livre élémentaire, mais plutôt un livre de niveau intermédiaire.

Claude Baril

Histologie dentaire: structure et développement de l'organe dentaire

J. Racadot et R. Weill. Paris, Masson et Cie — Julien Prélat, 1966. 229 p. Illustré. Cartonné 42 F

Ce volume traite du développement des dents et du périodonte, de l'histogénèse des tissus dentaires, de l'histologie des dents et du périodonte ainsi que de l'éruption des dents. Bien modeste, il est destiné aux étudiants. Ses auteurs se proposent, dans la préface, de présenter "des faits essentiels plutôt qu'une analyse exhaustive" du sujet. Tout en notant l'effort fait pour réduire le volume des chapitres principaux, on est surpris des digressions sur les éléments de l'histologie et de la minéralisation et sur les techniques que l'on ne cherche pas habituellement dans un volume spécialisé.

Le texte est excellent. Le style concis et clair permet une lecture rapide et une orientation facile. La classification et la présentation des faits essentiels sont excellentes.

Les illustrations sont une curiosité. Il y a quelques photographies spectaculaires dont le volume est beaucoup plus grand et le nombre beaucoup plus petit qu'il ne serait désirable. Les quelques dessins schématiques en couleurs peuvent faciliter l'étude. On cherche en vain l'identification des structures dans les illustrations, sauf pour quelques exceptions. Certains dessins sont reproduits de volumes de plus de 60 ans!

On note encore l'absence de bibliographie quoique de nombreux auteurs récents soient cités dans le texte.

Ce volume, dans l'ensemble, peut rendre un grand service aux étudiants qui ont déjà étudié un livre moderne, pour la récapitulation des faits essentiels. La terminologie française sera fort précieuse à nos étudiants canadiens-français. Le praticien y puisera quelques renseignements, si sa curiosité est plutôt superficielle.

Z. Mézl

Les implants aiguilles

René Ackermann. Paris, Julien Prélat, Editeur, 1966. 229 p. Illustré. Broché 54 F. Cartonné 62 F

La nouvelle théorie des implants aiguilles "type Scialom" est très bien décrite dans ce volume et offre au lecteur une révélation de la conception nouvelle en implantologie endo-osseuse.

Les espoirs, par les succès obtenus en deux ans, sont encourageants et l'auteur mentionne honnêtement tous les risques que prend l'opérateur par ces procédés.

Le volume est bien présenté, facile à lire et clair par les démonstrations explicatives

en couleur, qui mettent en valeur chaque théorie émise. L'auteur fait une revue complète des notions anatomiques pour mettre en évidence les régions stratégiques. Il donne ensuite les indications et contre-indications pour cette méthode implantaire et ce, en relation avec l'anatomie du lieu à implanter.

Cependant, en aucun cas il n'a été pris en considération les forces des relations occlusales d'une dent ou bridge avec les antagonistes naturels, ses conséquences d'hypo et hyperfonction sur les tissus périodentaires qui sont importants pour conserver ses dents existantes. Toutefois, la stabilisation d'une prothèse complète du bas serait par les implants aiguilles, la résolution du problème essentiel aux infirmes dentaires.

La technique paraît simple, l'instrumenta-

tion existe sur le marché, mais même averti par une lecture approfondie de cet ouvrage, un cours complet avec une certaine expérience appropriée devrait être suivi avant de commencer ce genre d'application.

Ces procédés comportent des risques et les chances de succès dépendent beaucoup de la dextérité de l'opérateur. Tel que décrit par l'auteur: la méthode reste difficile et n'est pas à la portée de chacun, elle est surtout visuelle, qu'il faut pouvoir se représenter un trajet intra-osseux, éviter ainsi les obstacles et réussir.

Je félicite les pionniers de cette nouvelle science et leur souhaite tous les succès cliniques. Peut-être que nous verrons prochainement des procédés d'interventions accessibles à chacun de nous pour l'implantologie.

I. L. Feinchnneider

Dimensions of Dental Hygiene

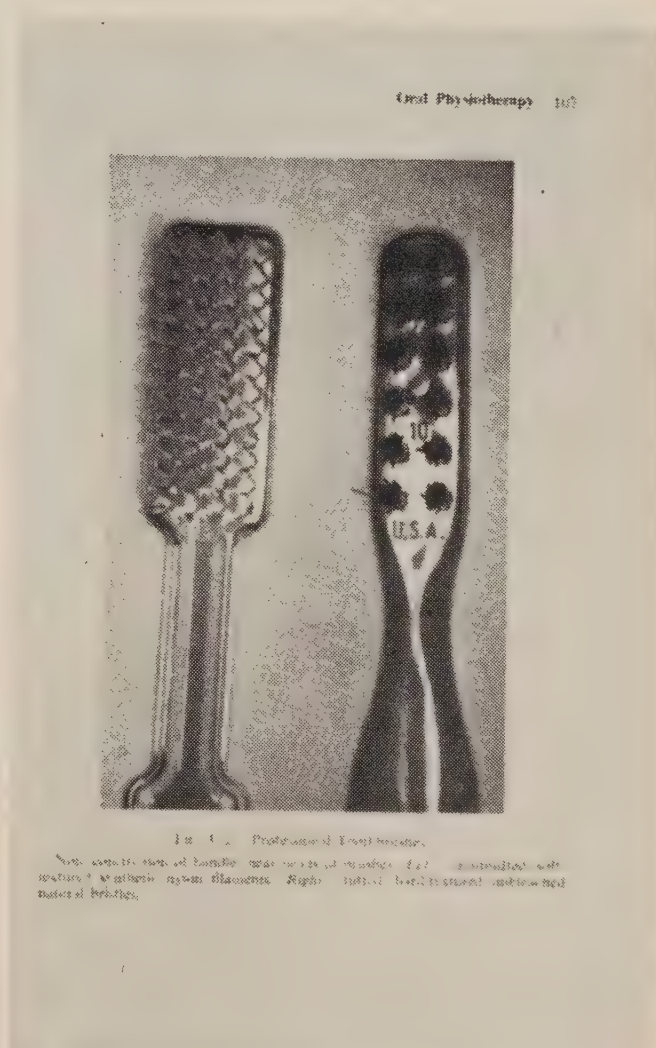
Pauline F. Steele. Philadelphia, Lea and Febiger, 1966. (Available from The Macmillan Company of Canada Limited, Toronto) 520 p. Illus. \$13.75

In recent years, texts for student dental hygienists have become available in many fields such as dental materials, oral pathology, and clinical dental hygiene practice. These are welcomed by dental hygiene educators, but many feel the need for an additional single synoptic text to provide a focus for the dental hygiene student. *Dimensions of Dental Hygiene*, edited by Pauline Steele and containing chapters by 14 highly qualified contributors, attempts to meet this need.

This book contains a tremendous amount of factual information and some stimulating discussions. As well as providing an understanding of current concepts in dental hygiene, some chapters include an insight of trends and areas of investigation in dental research. The book is well illustrated and most chapters have excellent bibliographies.

Unavoidably, the level of approach varies greatly in the different chapters. The approach selected, however, is usually justified in the light of material and background provided in various aspects of the dental hygiene curriculum. The chapter on oral pathology, for example, presupposes an understanding on the part of the student hygienist of many terms and pathological processes — an understanding which the student hygienist would acquire in a course in oral pathology with the assistance of another text. Oral prophylaxis and oral physiotherapy, however, are discussed in such a way that these chapters could be used very early in the course of studies.

To deal competently with the 'dimensions' of dental hygiene in one book requires an



economy of words from each contributor and a discerning editor. Some areas of discussion must be deleted entirely, others drastically condensed, and the reader may or may not agree with the editor's decisions. One might readily accept the exclusion of such topics

13

GROUP I CLASS 2

Procedures in Restoring a Lost Terminal Occlusion Brought About by Loss of All Posterior Mandibular Teeth, with Remaining Teeth Not in Satisfactory Occlusal Relationship

Examination

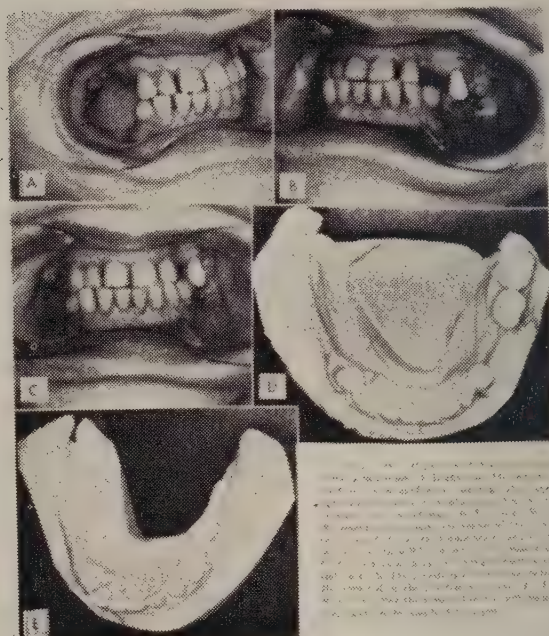
The patient is a female, 45 years of age. Preservation of the few remaining teeth and improvement in the occlusion are her main desires. In the mandible the left central incisor, first bicuspid, first and third molars, the right first and second bicuspid, and the first and third molars are missing (Fig. 2601 and B). The rest of the upper right second bicuspid is retained. In the mandible the first, second and third molars are pericoronally involved, mobile, and loose and require the right mandibular central incisor and first bicuspid were retained and are mobile. These teeth have been treated for pulpitis by a post and bridge habit during well being. The patient is a patient of the progressive deterioration of the anterior teeth on the right side (Fig. 2602).

228

TREATMENT PROCEDURES: GROUP I, CLASS 2 221

The roentgenogram discloses that the mandibular right central incisor and first bicuspid are in good position (Fig. 2611). The study model shows a significant gap, the mandibular incisor and bicuspid are under the maxillary. The right side of the maxillary is under the left (Fig. 2612).

The patient desired extensive treatment of the mandible and the patient function in the mandible is not satisfactory. She desires a mandible restored and to the right side in order to close the mouth without too much. The mandibular incisor and bicuspid (because of the abnormal habit). The teeth are small and the occlusion is not



as dental materials and radiology (the editor has happily kept this book from being a manual of technique) and yet regret the absence of a more detailed discussion of nutrition and its relation to dental health.

Perhaps a more serious fault lies in the sequence of the chapters. It is hard to understand, for example, why the chapter on oral prophylaxis is not preceded by the chapters on periodontics and dental deposits, which would provide background and understanding for it.

On the whole, Miss Steele and her contributors are to be congratulated on this book. Dental hygiene students will see in it a means of relating various areas of curriculum to each other, and educators who believe that the hygienist's education should be based on understanding rather than on rote learning will find it most useful.

Margery Forgay

Clinical Procedures in Occlusal Rehabilitation

S. C. Brecker. Ed. 2. Philadelphia and London, W. B. Saunders, 1966. (Available from McAlinsh & Co. Limited, Toronto) 502 p. Illus. \$19.45

It is fair to say that no single book of this length could possibly cover the field adequately. Nevertheless, Brecker's text con-

tains many good ideas on occlusal rehabilitation. It could be used for reference purposes by a dentist with previous experience and training in this field, but it is unsuitable for the undergraduate student or the dentist who desires a crash program in occlusal rehabilitation.

Much of the philosophy outlined at the beginning of the text is sound and commendable, but the remainder of the text leaves much to be desired.

Some of the author's definitions are well worded, as for instance: "Oral rehabilitation refers to the correction, treatment, and improvement of the dentition. In one instance, a single amalgam restoration or successful periodontic treatment rehabilitates the mouth, whereas, in another, extensive crowns and bridges are required. Occlusal rehabilitation refers to the treatment of the entire occlusion: it is the correction of all dental ailments for a particular patient in order to restore his occlusion to optimum function, improve upon the aesthetics, and preserve the teeth and periodontium. . . . Treating the teeth as a unit does not necessarily mean the radical cutting of all remaining teeth and covering them with full coverage restorations." These are statements with which everyone can agree.

Elsewhere in the text, however, one encounters passages which conflict with the facts taught by many leaders in the profession. For instance, the discussion on

pages 8 and 9, on the temporomandibular joint, is weak, inaccurate and confusing. It is generally accepted that there is a definite correlation between the TM joint, the neuromuscular system, the incisal guidance, and the occlusal contours of the teeth; yet the author ignores this relationship or makes it appear inconsequential by suggesting that the reader seek this information elsewhere.

Again, on page 5, he asserts that "as long as the occlusion functions satisfactorily, without pain or discomfort to the surrounding and supporting structures, no change in the pattern is advocated. . . ." Surely, the only excuse for occlusal rehabilitation is to preserve the periodontium. Whether the occlusion is comfortable or without pain is really secondary to this. Brecker, however, displays little concern for the preservation of the periodontium; at least he does not place it in proper perspective. He questions the value of using articulators; yet most teachers appreciate the articulator as a useful laboratory tool that eliminates time consuming procedures in the mouth.

On page 201, Brecker suggests "the restorations should be so constructed, that the direction of the force of mastication and contacts of the restored teeth are parallel to the long axis of the teeth." As anyone who has studied the mechanics of these forces will realize, this is impossible when restoring teeth with cusps having inclined planes.

There is scant mention of the use of rubber dam — one of the most valuable aids to good restorative dentistry. Finally, the chapter on three-quarter crowns and the modified three-quarter crowns is out of date. The concept of enamel rods has likewise been updated in recent years.

A dentist who sets out to rehabilitate the complete dentition must thoroughly understand all phases of this very complex service. Unfortunately, this book is quite limited in its coverage of the total picture. One must search the literature elsewhere to obtain this knowledge.

W. R. Scott

Premedication, Local and General Anesthesia in Dentistry

N. B. Jorgensen and Jess Hayden, Jr.
Philadelphia, Lea & Febiger, 1967. 149 p.
Illus. \$8.25

As stated in the preface, the purpose of this book is to offer rigorously tested clinical procedures for the control of pain and fear in the ambulatory dental patient. The au-

Infiltration and Nerve Block Techniques

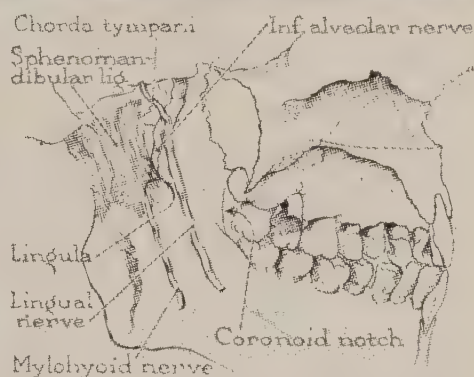


Fig. 34. Prognathic mandible.

thors present their material in a manner that is interesting as well as informative for practising dentists and dental students.

The first two chapters on physical evaluation and psychological aspects of dental practice are excellent. They convey knowledge that everyone in dental practice should have at his fingertips. The drugs recommended for premedication and local anaesthesia have a long history of clinical evaluation. They are noted for their predictable effectiveness and the rarity of side effects. The properties of these drugs are comprehensively described in the references cited. The sections dealing with local anaesthetic techniques and related anatomy are particularly well prepared. They offer an excellent review for the practitioner. The chapter on general anaesthesia in dentistry introduces the reader to this increasingly used adjunct for managing apprehensive dental patients.

In summary, this book provides an excellent review for the dentist who endeavours to practise painlessly. It is also an informative introduction for the dental student.

R. R. Schiewe

The library of the Canadian Dental Association is open daily from 9.00 a.m. to 5.00 p.m. except Saturdays and Sundays. Books and periodicals may be borrowed by members by writing to the Librarian, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario. Books are loaned under the following terms: (1) The borrowed book may be retained for a two week period from the date received by the borrower. (2) Renewal for a further two week period will be permitted provided the book is not requested by another member. (3) Postage on books is paid by the Association. New books are listed periodically in the Journal.

The Canadian Dental Association also maintains a selection of educational films which are available on loan. Films are shipped prepaid and must be returned with shipping charges prepaid by the borrower. Members should specify the date on which a film is to be used and return the film immediately after use.

The Canadian Film Institute, 1762 Carling Avenue, Ottawa 13, Ontario, also has a selection of films on dental public health. Borrowers should make their requests for these films as far as possible in advance, indicating the proposed date of showing and giving second and third alternative showing dates. There is a service charge for these films. The Canadian Film Institute will ship the films express collect and the borrower must return them express prepaid. The Institute bills the borrower for the service charge.

A student recruitment film, "Challenge of Dentistry," may be borrowed directly from Modern Talking Picture Service, 1875 Leslie Street, Don Mills, Ontario.

La bibliothèque de l'Association dentaire canadienne est ouverte tous les jours, excepté le samedi et le dimanche de 9h.00 a.m. à 5h.00 p.m. à tous les membres et à toute autre personne intéressée. Les membres peuvent emprunter des volumes et des revues dentaires en écrivant à la Bibliothécaire de l'Association dentaire canadienne, 234 rue St-Georges, Toronto 5, Ontario. Voici les conditions d'emprunt: (1) Les volumes peuvent être empruntés pour une période de quinze jours, à compter de la date de réception. (2) Un renouvellement de deux semaines est accordé, pourvu que dans l'intervalle, aucune demande n'ait été faite pour les mêmes volumes. (3) L'Association paie les frais de port. De nouveaux volumes seront à votre disposition au fur et à mesure qu'ils seront publiés. La liste de ces volumes paraît dans le Journal aussi souvent que possible.

L'Association possède aussi un choix de films disponibles sur demande. Les films sont expédiés francs de port mais les frais de retour doivent être payés par l'emprunteur. Les membres doivent spécifier la date à laquelle un film sera utilisé et le retourner immédiatement après sa démonstration.

Le Canadian Film Institute, 1762 avenue Carling, Ottawa 13, Ontario, possède de même un bon choix de films sur l'hygiène dentaire publique. Ceux qui désirent emprunter ces films sont priés de faire leurs demandes aussi à l'avance que possible, indiquant la date proposée pour leurs démonstrations et donnant une seconde et troisième dates possibles. Des frais de service sont comptés pour ces films. Le Canadian Film Institute expédiera les films non affranchis et l'emprunteur devra les retourner par express pré-payé.

Un film sur le recrutement d'étudiants, intitulé "Challenge of Dentistry," peut être emprunté directement du Modern Talking Picture Service, 1875 rue Leslie, Don Mills, Ontario.

Where the mountains dip to the sea

The approach from the east, whence most visitors come, is a spectacular array of mountain ridges, seamed and furrowed with snow, the deep and narrow valleys floored by the reflected blue or steel-grey of lakes. Settlements are tiny and scattered. The few roads to be seen climb out of nothing into emptiness. Then comes the widening green of Fraser delta and the proliferating urban sprawl bordering dappled waters of the Gulf of Georgia. At night the transition is even more dramatic, from occasional dim and tiny lights scattered through black immensity to the jewelled glare of neon and mercury vapour laced with ribbons of light that trace a pattern of beauty for miles on every side.

Here is a metropolis that grew from a sawmill, a dock, and a saloon — from Gassy Jack's Gastown. The rich glare of its lights is the yield of a 100 years of men burrowing into the mountains, stripping trees from timbered slopes, raking the coastal seas, fighting inland rivers, threading the narrow canyons, and chancing cattle among the gentler and kindlier valleys. Grandly the city stretches around the bays and inlets, the great fingers of water gnarled with docks and speckled with the world's ships. Its towers reach for the sky behind a lacing of beaches. Homes spread out on every side, over rocky shores and up the timbered slopes of the North Shore Mountains.

Vancouver presents as many images as there are eyes to see. For some the city revolves around a plush office high in the sky while the first September gales from the Straits of Juan de Fuca whistle harmlessly over the glass walls. For others it is a zoo hard by the cedars and Douglas firs of Stanley Park. Vancouver is the annual hooplah of the Pacific National Exhibition, year-round golf, or the determined tennis foursome who mop up yesterday's rain pools on cement courts with last weekend's newspapers, the way they have the winter through. Some feel it as they tack into the salt breeze from the Gulf of Georgia, beyond miles of bathers beached in the July sun. To others it is the scent of juniper and hemlock around a mountain cabin set in a quilt of Alpine flowers, or the city that lights up at their feet as the blue dusk thickens in a wind-cleared sky.

Vancouver is the early morning sound of shunting trains in bleak freight yards, when the light is spare and lamps still glow on the piers. The big grain ships in English Bay, just arrived from Europe and Asia, rattle up their anchors, then creep cautiously round fog-shrouded Prospect Point, their fog horns echoing from the cliffs of the Lion's Gate. The sun climbs over the far

peaks as crosstides of students begin to flow to the citadels of learning, west to the University of British Columbia at Point Grey, or east to Simon Fraser on Burnaby's furthest hilltop. But greater tides flow inward as snakelines of cars writhing over the multiple bridges bring people to the sleek office towers, the squat department stores, the late Victorian public buildings for another day. The downtown traffic sounds mingle with the thin high notes of oriental music that betokens solid blocks of Chinese restaurants and cabarets.

Vancouver is also a place of vivid contrast, where the clamour of the docks plays counterpoint to the tranquillity of Stanley Park; where a man can walk in January without a hat and swinging a furled umbrella; where you can ride a gondola to ski in the morning half a mile above the main streets and descend the same afternoon to skim over the waves on skis of another kind.

When the day is done and light begins to fade the same human tide drifts homeward over the bridges. But not for long. The flow returns downtown in the gathering dark as patrons stream toward the blaze of lights marking a ballet, a symphony, a sports arena or movies, or are drawn by the sounds of folk music and go-go dancing rising from some dim cellar.

When the full ebb sets in at last and the moon rises over the Fraser's gorges its light will dance in the shimmering waters, slanting down on the great cement elevators, the white beaches, the log booms by the sawmills, picking out even the cans which bob in the refuse between the wharves. Perhaps it will also shine on Marine Drive, glancing on the modest bronze plaques to Master Simon Fraser and Captain George Vancouver, intrepid explorers of a bygone age, their names enshrined in the geography of a city and a nation.

Une prérogative provinciale?

Le Collège royal des chirurgiens-dentistes du Canada, formé il y a plus d'un an, vient d'offrir sa collaboration aux provinces dans le but de les aider à solutionner les problèmes que pose la reconnaissance officielle des spécialistes.

Bien qu'un porte-parole du Collège ait reconnu dans une déclaration officielle que la reconnaissance des spécialités demeure une prérogative provinciale et que le Collège royal n'a "ni l'intention ni l'autorité nécessaire pour modifier la situation",¹ il n'en demeure pas moins que deux bureaux d'examens provinciaux ont déjà demandé l'autorisation de se servir de l'examen du Collège royal comme critère d'admission.

Nous nous retrouvons devant une situation familière: des organismes provinciaux renoncent à leurs prérogatives et adoptent une attitude centralisatrice. Bientôt on se demandera de quel droit une autre province s'oppose à cette centralisation qui semble si bien réussir ailleurs et l'idée de progrès à l'échelle nationale servira d'argument contre l'autonomie du bureau provincial, seul vrai responsable de la reconnaissance des spécialités.

Si l'on s'accorde généralement pour vouloir un organisme national dont le but soit de promouvoir le progrès des spécialités, on n'est pas nécessairement d'accord pour vouloir que cet organisme devienne agent des provinces et régie pour elles l'admission aux spécialités.

L'admission à la profession dentaire a toujours été une prérogative provin-

ciale, et là où l'on a cru opportun de considérer les circonstances qui prévalent dans chacune des provinces au moment d'accorder le droit de pratique, on a refusé que l'examen du bureau national des examens dentaires remplace l'examen des bureaux provinciaux. De même, on peut dire que l'admission aux spécialités demeure une prérogative provinciale, et qu'il y a lieu que les politiques qui régissent les spécialités s'adaptent aux besoins locaux qui peuvent varier de province en province.

Par ailleurs, il faut se souvenir que le Collège royal des chirurgiens-dentistes du Canada est un organisme qui possède une structure tout à fait particulière. Formé en vertu d'une loi fédérale, il a d'abord choisi individuellement chacun de ses membres à charte et il choisit maintenant ses membres ordinaires au moyen d'un examen. Cet organisme dispose donc du pouvoir d'exclure de son sein ceux qu'il juge à propos de ne pas admettre. Bien que son conseil de direction soit responsable vis-à-vis des membres qu'il a lui-même choisis, ce conseil n'est jamais responsable de ses actes vis-à-vis de l'ensemble de la profession dentaire. Il est à peine exagéré de dire que le Collège royal constitue un état dans l'état et que les spécialités reconnues par lui seul constitueraient des professions à l'intérieur de la profession dentaire. Une telle situation risquerait d'engendrer des conflits majeurs.

Il faut par ailleurs reconnaître qu'il existe actuellement une lacune importante au niveau de la reconnaissance des spécialistes. Il est indubitable qu'un examen sérieux remplacerait avantageusement le système actuel qui, à l'intérieur de règlements très vagues, laisse au bon vouloir d'un comité l'attribution de certificats de spécialistes aux individus qui en font la demande.

Il est important que les provinces réalisent l'existence de cette lacune et combler ce vide avec célérité. Si elles ne prennent pas rapidement leurs responsabilités dans ce domaine, il ne faudrait pas qu'elles s'indignent de voir des organismes nationaux tenter de le faire pour elles, sous prétexte de favoriser le progrès des spécialités à l'échelle nationale.

1. Le Collège royal des chirurgiens-dentistes offre de coopérer avec d'autres organisations dentaires. *J. Ass. Dent. Canad.* 34:108. 1968.

Vous faut-il une assurance-vie ou une protection quelconques? Les plans d'assurance de l'Association dentaire canadienne, qu'il s'agisse de plan d'épargne-retraite ou d'autres genres d'assurance, vous offrent la meilleure protection à des taux intéressants. Pour tout renseignement, écrire aux Plans d'assurance et de retraite de l'ADC, 2249 rue Yonge, Toronto 7, Ontario.

Evaluation clinique des propriétés analgésiques de la triméprazine, de la codéine et du placebo sur la douleur postchirurgicale et périodontique:

1. Protocole expérimental

Les amines phénothiaziniques sont connues depuis longtemps pour leurs effets potentialisateurs de la narcose barbiturique et de la narcose à l'éther. Leur activité potentialisatrice de l'analgésie à la morphine a également été démontrée. D'autre part, un pouvoir analgésique propre à quelques-uns des dérivés et plus spécialement à la méthotriméprazine a été mis en évidence. En effet, cette substance s'est révélée un analgésique efficace dans certains cas cliniques.¹⁻⁴ De plus, des études expérimentales contrôlées⁵ ont montré que la méthotriméprazine possédait une action antalgique comparable à celle de la morphine.

Nous avons, pour notre part, évalué en clinique, dans les cas de douleur chronique, cet effet antialgésique. Notre étude a montré que la méthotriméprazine à la dose de 15 mg par voie intra-musculaire possède un pouvoir analgésique comparable à celui de la morphine à la dose de 10 mg, injectée également par voie intra-musculaire.^{6,7} Cependant, la méthotriméprazine produit de la somnolence, ce qui limite son emploi chez les patients ambulants et par le fait même, théoriquement, en clinique dentaire. De plus, à la suite d'un traitement clinique chez le rat et chez la souris, il nous a été possible de développer une accoutumance marquée à la méthotriméprazine.^{8,9} Dans le but d'élargir l'éventail thérapeutique du dentiste, également pour caractériser et évaluer les propriétés analgésiques d'au-

La détermination de l'efficacité d'un analgésique exige des mesures de contrôle rigoureuses et nombreuses. Le présent travail consiste à évaluer en clinique, au moyen de la méthode à double insu, l'activité analgésique de la triméprazine dans les cas de douleurs dentaires postchirurgicales et périodontiques. Les patients sont choisis dans les différents services de la Faculté de chirurgie dentaire de l'Université de Montréal. Le pouvoir analgésique de la triméprazine (15 mg per os) est comparé à celui de la codéine (64 mg per os) et du placebo. Le présent article se limite à la description du protocole de cette étude.

tres composés phénothiaziniques et de nouvelles molécules, et aussi pour trouver un composé non toxicomanogène dont le pouvoir analgésique serait équivalent ou supérieur à celui de la morphine, qui reste toujours, malgré des réactions secondaires indésirables, un des analgésiques les plus puissants, nous avons entrepris des études expérimentales et cliniques des propriétés analgésiques de différentes phénothiazines.

La triméprazine, dont la formule chimique s'apparente à celle de la méthotriméprazine, a été choisie de préférence aux autres composés phénothiaziniques

Clinical evaluation of the analgesic activity of trimeprazine, codeine and a placebo on postoperative and periodontic pain:

1. Experimental protocol

Trimeprazine, a dimethylic phenothiazine derivative, possesses analgesic properties. This article describes the design of a double blind clinical evaluation of trimeprazine used for the relief of pain following surgical and periodontic procedures. Test subjects are drawn from various clinical departments of the Faculty of Dental Surgery, Université de Montréal. The analgesic potency of 15 mg. trimeprazine given orally is compared with 64 mg. codeine and a placebo administered via the same route. The requirements for controlled evaluation of analgesic agents are enumerated and described.

puisque une relation structure chimique-activité pharmacodynamique a été reconnue pour cette classe de médicaments.

Les propriétés analgésiques de la triméprazine, de la morphine et du placebo ont été évaluées chez trois espèces animales au moyen de trois stimuli nociceptifs.¹⁰ Chez le rat, des résultats négatifs ont été obtenus. L'application de la technique de Bianchi chez la souris montre que la triméprazine, à des doses de 16 et 32 mg par kg de poids est statistiquement plus efficace que le placebo pour augmenter le temps de réaction des animaux soumis au stimulus douloureux. La morphine ne pré-

sente aucune différence significative avec le placebo. Par le test de la stimulation électrique de la pulpe dentaire chez des lapins pris comme leur propre témoin, nous avons comparé l'activité analgésique de la triméprazine et de la morphine dans une proportion de doses de trois à un. L'analyse statistique des résultats révèle que la triméprazine est plus puissante que la morphine pour élever le seuil à la douleur. De plus, l'action hypoalgésique de la triméprazine se manifeste plus rapidement et dure plus longtemps. Ces constatations nous portent à croire que la triméprazine est un analgésique possédant un potentiel clinique et spécialement en thérapeutique dentaire.

La présente communication consiste dans la description d'un protocole concernant l'étude clinique des propriétés analgésiques de la triméprazine comparée à la codéine et au placebo pour réduire la douleur dans les cas postchirurgicaux, comme par exemple inclusions, extractions en série, alvéolectomies, apéctomies, ablations de kyste, etc. et dans les cas périodontiques, tels gingivectomies, curetage sous-gingival, extension du pli buccal, opération d'un lambeau, etc.

MATÉRIEL ET MÉTHODES

La méthode de l'entrevue est utilisée. Trois médicaments sont employés. La substance qui a montré expérimentale-

ment des propriétés analgésiques, soit la triméprazine, à la dose de 15 mg, un analgésique connu, soit la codéine, à la dose de 64 mg, et une substance témoin, le placebo. Ces trois médicaments sont présentés en capsules absolument iden-

tiques quant à la forme, la couleur et le poids. Ils sont identifiés par une lettre d'un code, soit: A, B et C. Les patients sont choisis dans le Département de stomatologie de la Faculté de chirurgie dentaire de l'Université de Montréal. Le

QUESTIONNAIRE SUR LA DOULEUR

POST-OPÉATOIRE ET PÉRIDENTAIRE

Nom du patient: _____

Age: _____ Sexe: _____

Diagnostic: _____

Date: _____

Site de la douleur: _____

Heure: _____

Médicament: _____

- QUESTIONS: (à poser à chaque entrevue de 1 à 6)
1. Avez-vous de la douleur? Combien? (seule question à poser à l'entrevue pré-méd.)

2. Est-ce que votre douleur est diminuée de plus que 50%

3. Avez-vous aucun autre effet dû au médicament?
Si oui, lesquels? (voir effets secondaires)

Entrevues		Réponses								Effets secondaires							(observations objectives)
		1				2		3		E	S	M	F	N	C	Autres	
Pré-médication		0	1	2	3	4	oui	non	oui	non							
Post-médication	1/2 h.	0	1	2	3	4											
	1 hre	0	1	2	3	4											
	2 hres	0	1	2	3	4											
	3 hres	0	1	2	3	4											
	4 hres	0	1	2	3	4											
	5 hres	0	1	2	3	4											
	6 hres	0	1	2	3	4											
Total																	

INTENSITÉ DE LA DOULEUR:

- 0 - nulle
- 1 - faible (peu)
- 2 - modérée (moyenne)
- 3 - forte
- 4 - atroce

EFFETS SECONDAIRES:

- E - étourdissement
- S - somnolence
- M - mal de tête
- F - fatigue
- N - nausée
- C - constipation

patient reçoit l'une des trois substances. La substance administrée est déterminée au hasard. Les observateurs ignorent la nature de la substance ingérée. De la même façon, les patients ne connaissent ni le produit administré, ni ses propriétés. Le patient est accepté dans l'expérience si nos critères sont satisfaits. Aucun analgésique, sédatif, hypnotique ou neuroleptique ne doit être administré durant les six heures précédant l'ingestion de la substance codifiée.

La première entrevue est faite avant l'administration et les réponses sont écrites sur des feuilles préparées à cet effet (Questionnaire) et dont les observateurs se servent pendant toute la durée de l'expérience. Après administration de la substance étudiée, sept entrevues ont lieu: une demi-heure après pour la première entrevue, puis à toutes les heures. Chaque patient est questionné par la même personne. A chaque entrevue, tant avant qu'après l'administration du médicament, le patient doit classifier l'intensité de sa douleur d'après les catégories suivantes: absence de douleur, douleur faible, douleur modérée ou moyenne, douleur forte, douleur très forte ou atroce. Suivant la réponse, un score de 0, 1, 2, 3, 4 est attribué. De plus, à chaque entrevue subséquente à la médication, on demande au patient de comparer l'intensité de sa douleur avant l'ingestion du médicament et au moment où l'observateur le questionne afin qu'il puisse déterminer lui-même s'il a ressenti un soulagement supérieur à 50 pour cent. Le patient doit répondre par "oui" ou "non". Les manifestations secondaires décrites spontanément par le patient sont inscrites à chaque entrevue. Les questions suggestives sont évitées et les réactions secondaires, remarquées par l'observateur, mais non soulignées par le patient sont considérées comme douteuses et de ce fait, ne sont pas retenues.

RÉSULTATS

Nos résultats sont étudiés de la façon suivante:

1. Pour ce qui a trait au score d'intensité

de la douleur, à la première demi-heure et à chaque heure.—Les données obtenues, pour cette partie du questionnaire, sont compilées comme suit: le score du soulagement de la douleur est déterminé par rapport à l'intensité de la douleur avant la médication, c'est-à-dire que si un patient ressent une douleur forte, donc le score + 3, avant l'administration et qu'après administration de la substance codifiée, il ressent une douleur faible, donc le score + 1, le score de soulagement + 2 est enregistré. De la même façon, une intensité faible avant l'administration devenant une intensité forte après l'ingestion donne un score —2. Lorsqu'il n'y a aucun soulagement, le score 0 est attribué. Les tests statistiques employés sont ceux de Friedman (X_R^2) ou le "Two way analysis of variance" et de Wilcoxon ou "Sign rank test".¹¹

2. *Pour ce qui a trait au soulagement de la douleur supérieur à 50 pour cent.*—Nous procédons à une étude globale des réponses que nous analysons par les méthodes de Friedman et de Wilcoxon. L'incidence des réactions secondaires est également analysée par les tests de Wilcoxon et par la détermination du chi-carré (X^2). Nous avons déterminé au départ que 36 patients satisfaisant nos critères seraient choisis. Mais il nous est impossible à ce stade de dévoiler nos résultats cliniques certaines des réponses restant à être analysées. C'est pourquoi nous nous bornons à la description de la planification de notre évaluation clinique. Dans toute étude clinique bien contrôlée, où la méthode à double insu est utilisée, trois principes sont à retenir si l'on veut obtenir des résultats objectifs:

(a) le chercheur qui dirige le travail doit faire la recherche expérimentale.

(b) ce même chercheur planifie l'étude clinique avec toutes les mesures de contrôle qui s'imposent, spécialement quand la douleur est en cause. Il ne doit pas devenir le thérapeute et l'observateur. C'est une mesure de contrôle essentielle, si on veut obtenir des données non contaminées. C'est à ce moment que les cliniciens entrent dans l'étude. Ils voient au choix des patients, à l'administration et à l'absorption du médicament codifié et remplissent le questionnaire.

(c) les résultats doivent être complets avant de les quantifier.

DISCUSSION

Dans une expérience à double insu sur 36 patients, pris comme leur propre contrôle, et souffrant de douleurs postopératoires et périodontiques, nous évaluons les activités analgésiques de la triméprazine, de la codéine et du placebo. Nos médicaments sont administrés par voie orale, sous forme de capsules aux doses suivantes: triméprazine 15 mg, codéine 64 mg et le placebo. Nous employons deux méthodes d'analgésie. Cette étude est à notre avis, bien planifiée pour les besoins de la thérapeutique dentaire:

1. Les standards de référence sont la codéine et le placebo.
2. L'administration et l'absorption du médicament sont bien contrôlées.
3. Nous utilisons la technique double aveugle ou à double insu.
4. Les médicaments sont attribués selon une table de nombre au hasard.
5. Les conditions expérimentales sont standardisées.
6. Les sujets sont choisis avec le plus grand soin, sachant qu'il est très difficile d'obtenir des groupes représentatifs. C'est pourquoi toute étude pharmacologique clinique surtout analgésimétrique est longue.
7. Le traitement statistique est prévu.

Nous croyons que la science dentaire est toute désignée pour profiter largement de ces travaux puisque le dentiste côtoie la douleur tous les jours. En effet ses patients sont convaincus à tort ou à raison, que le traitement qu'ils recevront sera douloureux. Ce fait psychologique est particulièrement important en dentisterie. Lorsque l'on parle de douleur, spécialement en clinique dentaire, les composantes anxiété et stress sont à retenir. En conséquence, le dentiste et le patient tiennent à l'administration d'une substance qui élève le seuil de la douleur. Jusqu'à maintenant, faute de recherches pharmacologiques, les dentistes ne prescrivent que des analgésiques mineurs comme l'aspirine et l'APC avec ou sans codéine. Nos recherches, croyons-nous, peuvent élargir l'arsenal thérapeutique du dentiste.

RÉSUMÉ

Au moyen des méthodes classiques d'algésimétrie et d'analgésimétrie, nous avons démontré un pouvoir analgésique expérimental propre à la triméprazine, un dérivé de la phénothiazine du groupe diméthylque. Notre présent travail consiste à évaluer en clinique, au moyen de la méthode à double insu, l'activité analgésique de la triméprazine dans les cas de douleurs dentaires postchirurgicales et périodontiques. Nos patients sont choisis dans les différents services de stomatologie de la clinique de la Faculté de chirurgie dentaire de l'Université de Montréal. Le pouvoir analgésique de la triméprazine (15 mg per os) est comparé à celui de la codéine (64 mg per os) et du placebo.

Nous nous limitons dans le présent article à la description de notre protocole. La détermination de l'efficacité d'un analgésique exige des mesures de contrôle rigoureuses et nombreuses. Nous schématisons et discutons de ces mesures.

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Université de Montréal

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Periapical fibro-osteo-cementoma

Periapical fibro-osteo-cementoma is a permanently benign, asymptomatic bone lesion of variable radiographic appearance. Its appearance depends on the stage at which the lesion is observed. The lamina dura around the involved teeth is most frequently thinned or missing. The lesion is most frequently observed in women over the age of 35. Clinical observations, including the colour of involved teeth, contour and colour of the mucous membrane, and vitality tests, are generally within normal limits. The dental history is essentially negative, and there is as a rule no indication of trauma or pain. This non-infectious lesion has no deleterious effects and exhibits no tendency toward malignant transformation. Consequently, there is no justifiable reason for its surgical removal.

La tumeur fibro-ostéo périapicale est une lésion osseuse asymptomatique bénigne qui présente à la radio des aspects divers. Ils dépendent du degré d'évolution de la lésion. La plupart du temps la lamina dura, autour des dents atteintes, est amincie ou manquante. Cette lésion s'observe le plus souvent chez des femmes de plus de 35 ans. Des observations cliniques relatives à la couleur des dents en question, la couleur et l'état de la muqueuse, ainsi que des tests de vitalité sont habituellement dans les limites de la normale. Les antécédents dentaires du patient sont essentiellement négatifs et cette lésion ne s'accompagne généralement ni de traumatisme ni de douleur. Elle n'est pas infectieuse, n'a pas d'effets nocifs et ne présente aucune tendance à devenir maligne. Il n'y a donc aucune raison d'intervenir chirurgicalement.

Periapical fibro-osteo-cementoma is a benign neoplasm of somewhat limited growth occurring as single or multiple lesions in either or both jaws of the same individual. The aetiology is unclear, but many consider this lesion a reaction to chronic low grade irritation such as occlusal trauma.

This not uncommonly observed growth is believed to result from fibroblastic proliferation of the connective tissue cells in

the region of the periodontic membrane surrounding the apices of one or more teeth. Osteoclastic, osteoblastic and cementoblastic activity produces a lesion that varies greatly in its radiographic appearance depending on the stage at which the condition is observed.

This lesion has many names (periapical fibrous dysplasia, cementoma) some of them misnomers. Histologically, the term periapical fibro-osteo-cementoma

most accurately describes the growth: periapical, since it is most frequently observed around the apices of teeth; fibro, because initially the osteolytic area contains a high proportion of fibrous tissue; osteo-cementoma, because in the secondary stage new bone and cementum are deposited within the growth, and because in the final stage additional cementum is laid down within the lesion and along the apical third of some of the teeth involved by the growth. It must be admitted, however, that we cannot distinguish sclerotic bone from cementum.

MANIFESTATIONS

Clinical Observations.—The clinical manifestations are usually negative. The colour and vitality of the involved teeth are normal. As a rule no history of related trauma or pain can be elicited, and there is no evidence of abnormal swelling or discoloration of the mucous membrane.

The lesions are often multiple and affect the mandibular incisors most frequently.

Traumatogenic occlusion has been cited as a cause, but there is insufficient evidence to substantiate this.

Radiographic Observations.—Initially, the lesion is necessarily small. The periodontic space is slightly widened and the lamina dura thinned. At this stage the lesion bears some radiographic resemblance to rarifying osteitis (Figures 1 and 2). A differential diagnosis should therefore include a search for an odontogenic cause as well as interpretation of the dental history, vitality tests and the clinical appearance.

As the lesion progresses and enlarges during the second or 'cementoblastic' stage, some of the fibrous tissue is replaced by new osteoid tissue capable of laying down cementum. These additional structures render the lesion more radiopaque.

After some years, the fibrous, osteoid and cemental elements may undergo further change. The fibrous portion diminishes except around the periphery of the lesion, the osteoid element remains in a state of flux (sometimes for up to 20 years), and the cemental portion in-

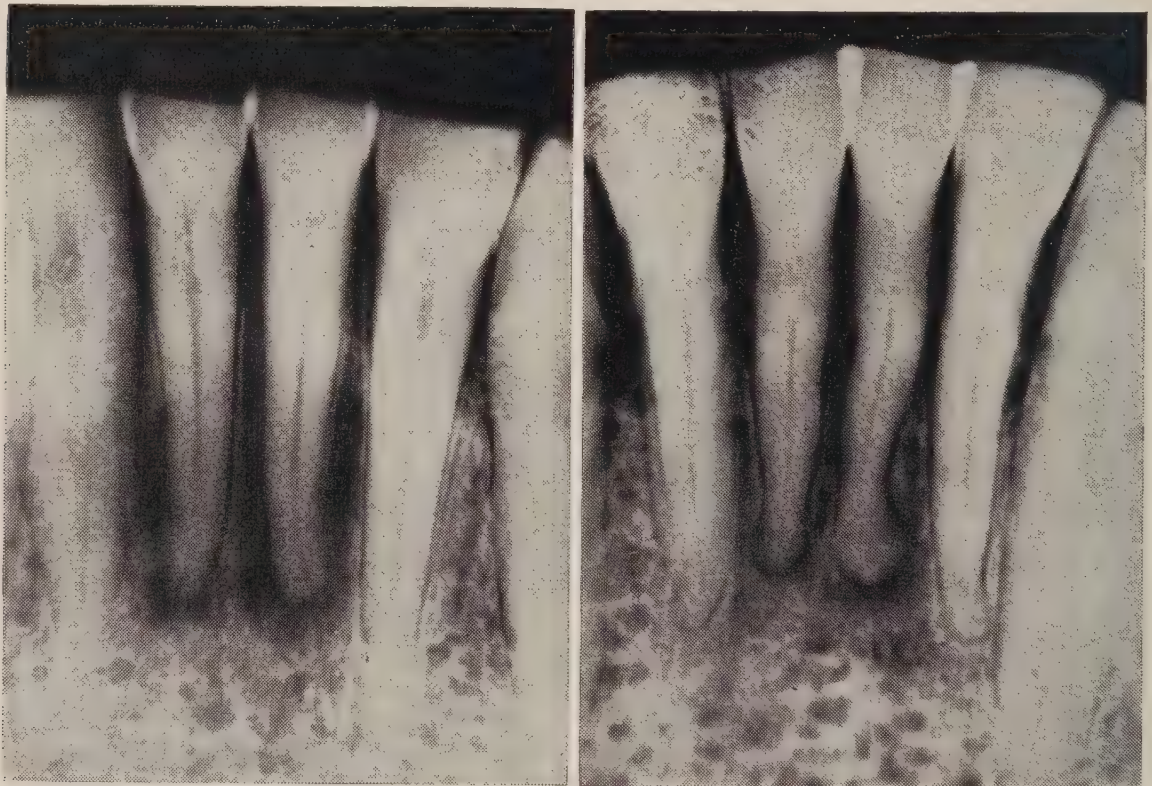


FIGURE 1 Two examples of the radiographic appearance of early periapical fibro-osteocementoma of the lower incisor region.

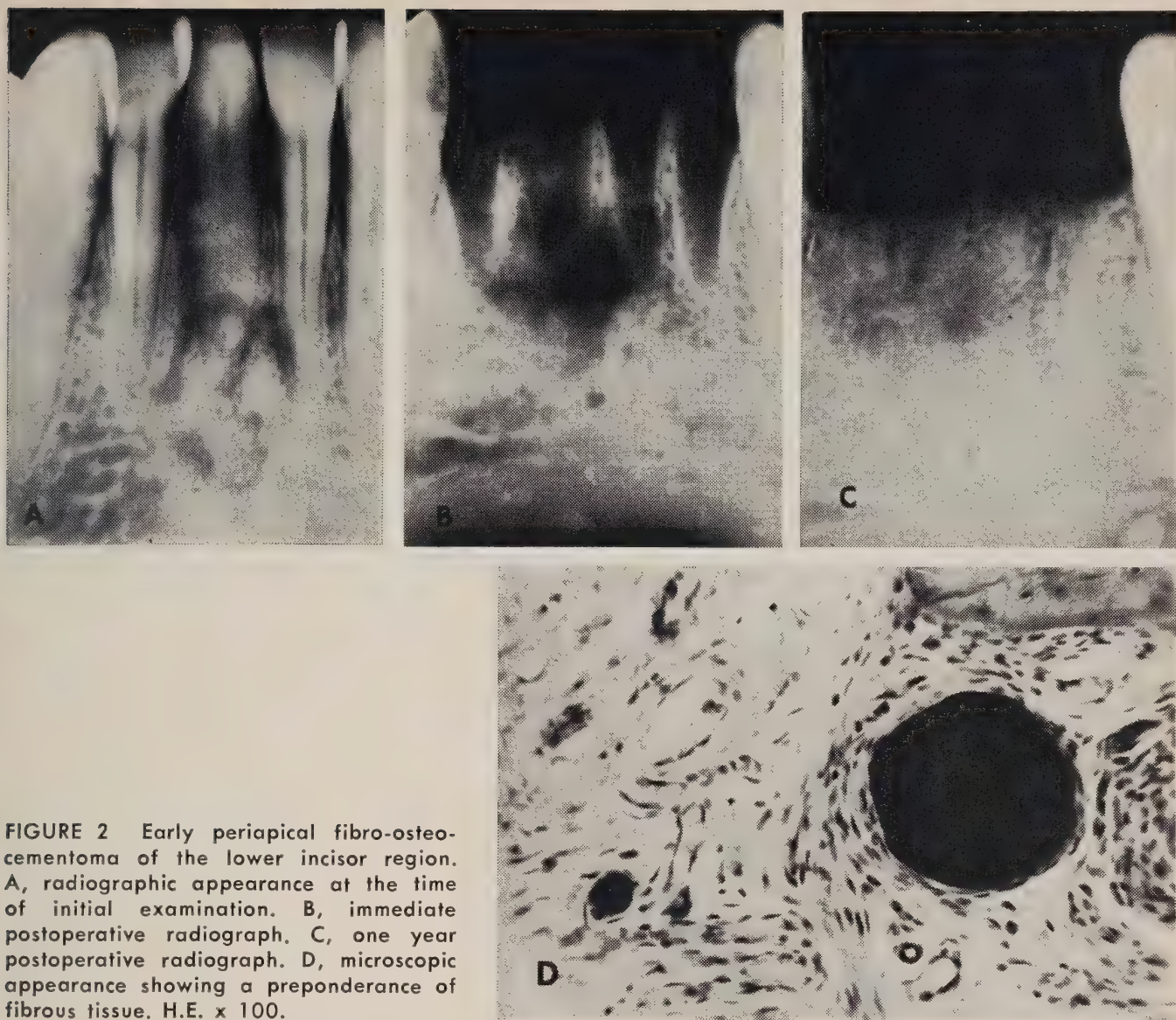


FIGURE 2 Early periapical fibro-osteocementoma of the lower incisor region. A, radiographic appearance at the time of initial examination. B, immediate postoperative radiograph. C, one year postoperative radiograph. D, microscopic appearance showing a preponderance of fibrous tissue. H.E. x 100.

creases, making the core of the lesion even more radiopaque. Hypercementosis of adjacent tooth roots, a not uncommon finding, is usually confined to the apical third of the roots.

In the final stages (Figures 3-5) there is further deposition of cementum. This produces an enlarged area of radiopacity surrounded by a radiolucent zone representing the lesion's fibrous capsule. When this late stage is observed in an edentulous area it may be more correctly termed a cementoma, cementum being its principal component.

Bone is in a constant state of flux whereas cementum, once laid down, is relatively inert. Accordingly, bone may be replaced by cementum. The presumed mechanism for this transformation may be one of (1) decalcification of the inorganic component and concurrent

proteolytic destruction of the organic component of bone within the lesion, followed by (2) formation of an organic matrix and deposition of the calcific component of cementum.

Laboratory Findings.—According to Stafne^{1,2} there is no unusual elevation in serum calcium or phosphorus nor in serum alkaline phosphatase levels.

Incidence.—Forget³ in 1860 was probably the first to describe the condition. He called it a 'cementoma.' His patient was a horse.

Stafne¹ was the first to investigate thoroughly the radiographic aspect of the problem. In a survey of 10,000 consecutive adult full-mouth radiographs, he observed 24 cases resembling periapical fibro-osteocementoma. Fifty-two teeth

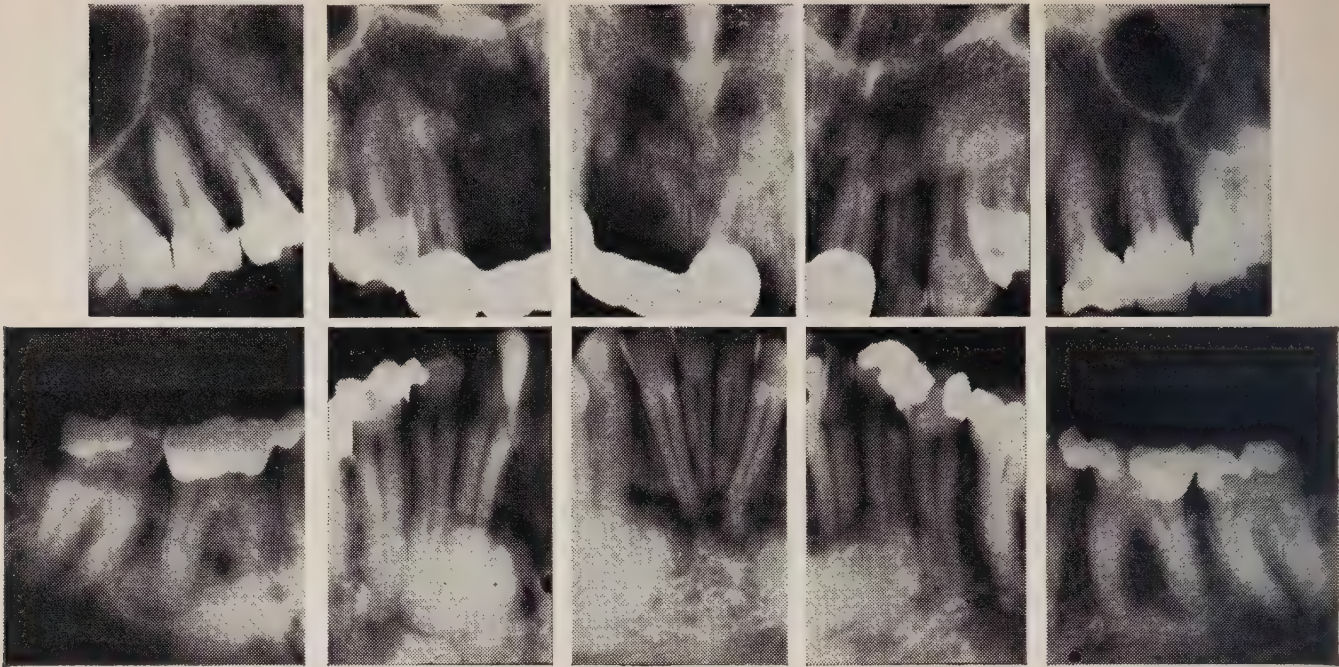
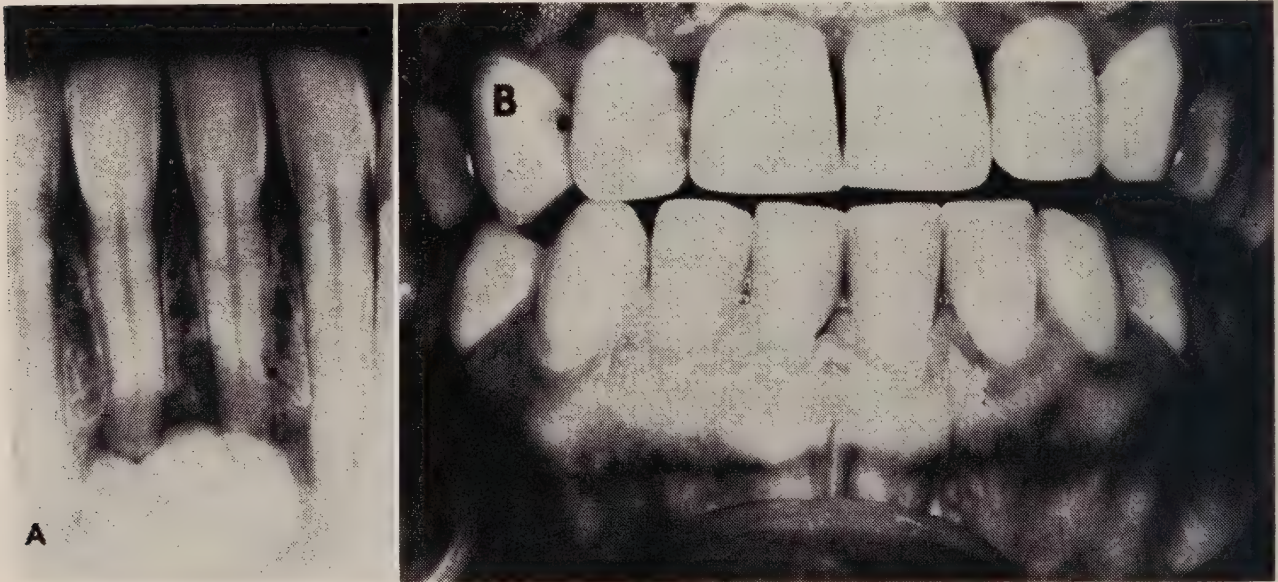


FIGURE 3 Periapical radiographs from a 46 year old woman showing bilateral periapical fibro-osteocementoma in the upper and lower jaws.

were involved; 17 of the cases were female. Later, in 1934, Stafne² added 11 more cases making a total of 35 cases. Seventy-eight teeth were involved. The patients' ages ranged from 24 to 60 years, the average being 43. Approximately 75 per cent of the cases occurred in women. In a survey which spanned 16 years, Zegarelli and Kutscher⁴ accumulated some 275 cases. The sex ratio was approximately eight women to every man. The youngest patient was 17 years of age,

the oldest 65, and the average age was 37. Many others, including Bernier and Thompson,⁵ Zegarelli and Ziskin,⁶ Worth,⁷ Chaudhry, Spink and Gorlin,⁸ and Sweet⁹ have reported cases that resemble periapical fibro-osteocementoma radiographically. Stafne¹⁰ believes that periapical fibro-osteocementoma, unlike other fibro-osseous entities, does not cause resorption of the roots of teeth with which it comes

FIGURE 4 A, radiographic appearance of advanced periapical fibro-osteocementoma of the lower incisor region. B, the clinical appearance of the four incisors and mucous membrane was normal.



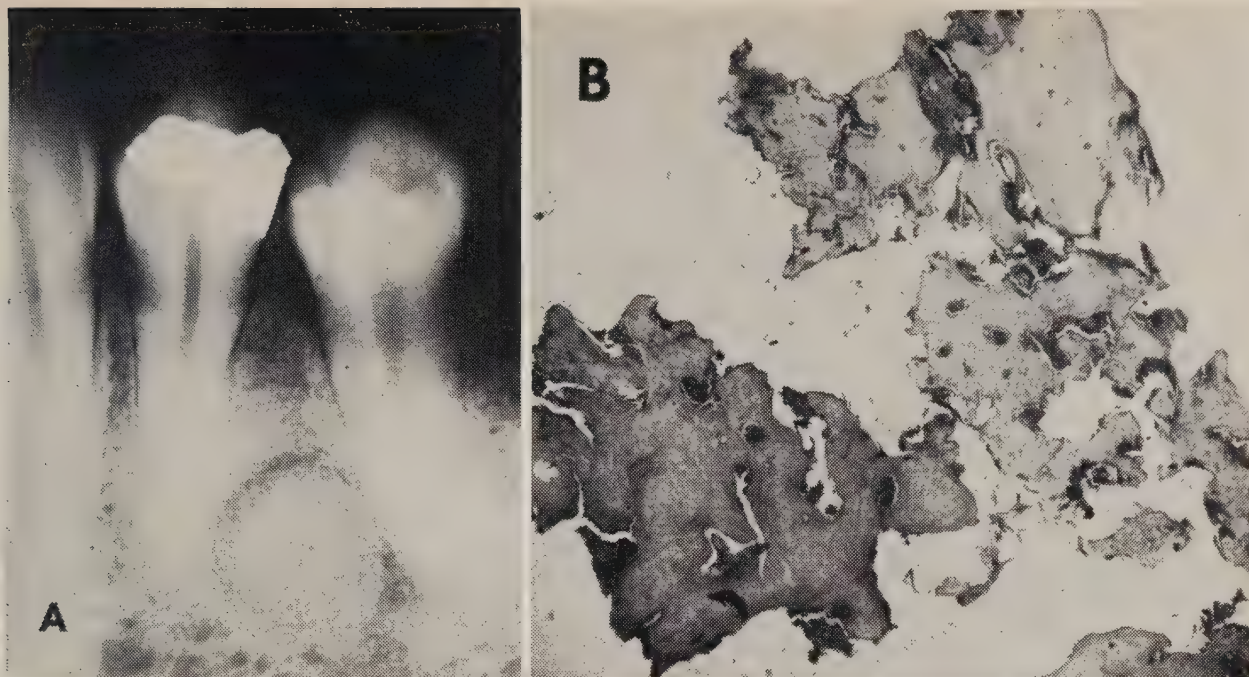


FIGURE 5 A, radiographic appearance of an advanced periapical fibro-osteo-cementoma in the lower bicuspid region. B, microscopic appearance reveals a preponderance of cementum. H.E. x 25. Radiologically and histologically the lesion bears close resemblance to a compact osteoma.

in contact. Instead, this lesion may induce hypercementosis. The absence of root resorption or the presence of hypercementosis in a radiograph may therefore be indicative of this condition.

SUMMARY

Periapical fibro-osteo-cementoma is a permanently benign, asymptomatic bone lesion of variable radiographic appearance. This appearance depends on the stage at which the lesion is observed. The lamina dura around the involved teeth is most frequently thinned or missing. The lesion is most frequently observed in women over the age of 35. Clinical observations, including the colour of involved teeth, swelling and colour of the mucous membrane and vitality tests, are generally within normal limits. The dental history is essentially negative, and there is as a rule no indication of trauma or pain. This non-infectious lesion has no deleterious effects and exhibits no tendency toward malignant transformation.

Consequently, there is no justifiable reason for its surgical removal.

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Duplicating nature: a realistic guide to aesthetic dentures

Appearance is a main objective of patients who seek dentures. Stereotyped rules of tooth selection are no substitute for a rational exploration of the factors that contribute to a pleasing facial appearance: (1) the appearance of the face in repose and under varying conditions of emotional stress; and (2) the contribution, in terms of position, dimension, shade, alignment and form, of the individually selected anterior teeth. Total aesthetics, involving the appearance of the face as well as the dentures, is the goal of complete dentures that defy detection.

Son apparence est le souci principal du patient qui désire une prothèse complète. Des règles stéréotypées pour le choix des dents ne peuvent pas remplacer l'étude rationnelle des facteurs qui contribuent à rendre agréable un visage: (1) l'aspect de la physionomie au repos et sous le coup de différentes émotions; (2) la contribution des dents antérieures choisies individuellement quant à leur position, leurs dimensions, leur forme, leur alignement. Pour créer des prothèses complètes qu'il soit vraiment impossibles d'identifier comme tels, il faut appliquer une esthétique générale qui concerne le visage tout entier, au même titre que les appareils eux-mêmes.

Dental care is performed in the most sensitive and emotionally charged area of the body. Prosthodontics, of all dental specialties, faces the most serious challenge. The average patient who consults a prosthodontist is vitally concerned about how he will look with a denture. Patients may mask their anxiety by making unrelated observations about relevant cost, comfort, and even function. But appearance is of primary concern to every human being regardless of age, sex, race,

or national origin. This is not to deny the significance of comfort or function but merely to direct attention to reality; appearance is a fundamental instinct and therefore a main objective of those seeking denture service.

The pursuit of aesthetic excellence ranges from attempts to duplicate natural tooth colour and form to the full consideration of the social and psychological aspects of prosthodontic therapy.¹ This quest may be limited to denture aesthetics

or may encompass the broad sweep of facial aesthetics as related to denture aesthetics.

Through the years many procedures have been advocated to meet appearance needs. Williams² instituted a system of mould selection for anterior teeth, based on an assumed relationship between the shape of upper central incisors and that of the face. Facial types were accordingly identified as square, tapering or ovoid and teeth of corresponding shapes were indicated for each type. This system has no scientific basis; yet it has been perpetuated by many tooth manufacturers and is still widely accepted by dentists.

Hardy,³ in 1939, promoted the use of larger anterior teeth and recommended teeth with a curved labial surface. He 'resolved' the problem of appearance with the admonition: "Make the teeth look like natural teeth!"

A more recently publicized work on the subject of anterior teeth and aesthetics presents a system of tooth selection by mould, shade and arrangement. The selection of teeth by the laboratory technician is coupled with a pre-set gingival contour which fits a pattern of the patient's sex, personality and age. Generally, these restorations are more pleasing to the eye than the so-called conventional dentures. However, the aesthetic results are directly proportional to the rigid application of given principles. Since both the prosthodontist and technician must follow a prescribed technique the final results all tend to look alike. Moses⁴ recognized the inherent weakness of this method when he pointed out that "this system probably works out well and pleases most people, while actually it is completely wrong if we are to use the word 'natural.'" For example, let us visualize a family where both parents are classic examples of perfection in accordance with our concepts of teeth and figure. The feminine rounded teeth of the mother may be inherited by the son and the masculine square teeth by the daughter. A further complication arises if the daughter's face and dental arches are small while those of the son are large. This is a clear violation of most of the

fundamental standards of dental aesthetics. Tooth harmony is no longer related to facial harmony; yet the natural laws of heredity have been fulfilled. Even here the result, be it good or bad, must be termed as 'natural.'

The problems of appearance are not simple. They present many disturbing facets. Terminology may compound rather than resolve existing confusion over aesthetics in complete dentures. Some critics,⁵ considering the term aesthetics vague and inappropriate for dental art, urge that it be discarded. Most people, we are told, desire 'natural looking teeth' if they are questioned on the subject—but here the agreement ends. The prosthodontist soon discovers that patients are individuals and have personal opinions of what constitutes natural appearance; so do their friends, relatives, social and business acquaintances. Even dentists with their varied individual experiences in the specialties conceive of natural appearance in totally different dimensions. The result of all this has been a flood of new descriptive terms designed, we are told, to clarify our thinking and simplify our artistic efforts. But appearance is more than words or phrases used by an enthusiastic group of professional people. Appearance is a personal and individual evaluation, a subjective interpretation dominated by an emotional and philosophical drive which speaks to the senses.

To fulfil the objectives of function and appearance, it seems to me that the following requirements must be met:

First, the restoration must be acceptable to the patient as well as to the culture in which he lives and works. From the outset the dentist must determine what the patient's dental attitudes and expectations are and he must try to accommodate these as fully as possible. In addition, the dentist must stimulate a desire for complete dentures which truly defy visible evidence of artificiality.

Secondly, the dentist must explore the methods of transposing accepted artistic values into usable clinical rules and procedures. This must be done before any art form can be taught or produced. The

treatment procedures are complex and cannot be relegated to auxiliary personnel. Everyone has some basic artistic sense which can be enriched by established principles. While all rules of facial appearance and denture aesthetics have exceptions, there are still recognizable principles from which valid rules may be formulated. Unfortunately, too many dentists seek and find refuge in stereotyped rules which they rigidly follow. Such rules are purposely designed to eliminate the dentist's personal judgment. The dentist in turn hopes, rather piously, that these rules will produce assured and automatic success. All forms of art demand an appreciation of guiding principles based on governing rules, and dentistry is no exception. The final judgment of a pleasing facial appearance, however, rests not on rules and regulations but on perception in the eyes and mind of the beholder. Art is nothing but this strange translation of thought by form.

Thirdly, the patient must like the teeth. He must be confident that they are acceptable to relatives and friends. Success is measured by the degree to which we satisfy the patient's vanity and pride.

The following considerations are pertinent to achieving a successful natural appearance.

1. The patient's face should claim primary attention. Appearance of the face in repose and function is the guide to acceptable denture aesthetics for the individual.⁶ Total or functional aesthetics can only be achieved through an appreciation of each patient's individual facial characteristics which must be recognized, respected and restored by the prosthodontist. In contrast, an excessive concentration on mechanical details invites aesthetic failure. This happens when the choice of certain teeth and tooth arrangements is dictated by preconceived patient characteristics. (These are communicated in work authorization forms to auxiliary personnel, and the patient is expected to accept the results). In total aesthetics, however, we correlate denture aesthetics with the state of the patient's general and emotional health. There are numerous additional intra-oral considerations, such as inade-

quate denture space, gross ridge resorption and lip-ridge relationship, which must be interpreted to achieve optimum facial aesthetics. The face is truly the 'front' for the individual. The million dollar smile is 90 per cent teeth. By duplicating nature we can normally meet the challenge of successfully restoring or preserving a patient's natural appearance but we must also be cognizant of our limitations. An emotionally disturbed person who is constantly depressed reflects a typical facial appearance that cannot be altered by dentures. The alleviation of a schizophrenic appearance lies beyond the realm of the prosthodontist. Here we approach the point where physiology and psychology touch—the place of the emotions. A discussion of the physiology of the emotions must begin by recognizing that man is body and mind, a psychobiological whole, and that emotion has a mental and physical side.⁷ For example, a patient, fearing the prospect of having his last remaining teeth extracted, may desire the company and protection of a close friend when he visits the dentist. The physical side of this fear manifests as tachycardia, vasoconstriction in the skin, perspiration, pupillary dilatation, dryness of the mouth, and possibly even a muscular tremor. Thus both sympathetic and somatic functions are disturbed. Every patient who seeks prosthodontic treatment experiences these phenomena to some degree. The aesthetic prognosis depends on how well we perceive and weigh such manifestations throughout the course of treatment.

2. The contribution of the individual anterior teeth to realism of the dental composition is self-evident. The previously discussed principles have a major influence on reproducing natural conditions in complete dentures. We cannot, however, avoid some discussion of the teeth and devising a natural appearing background for their placement. Five factors distinguish 'false' teeth from teeth with a natural appearance. Listed in order of importance, they are: position, dimension, shade, alignment and form.

Teeth must be individually positioned on stable bases by the dentist. They must

then be examined in the patient's mouth with the lips in active movement as well as in repose. The lips need the support of the denture base and the teeth in order to achieve an acceptable profile and restore the firmness of muscle tone. The teeth must be in harmony with the lips in all acts of facial expression that involve any degree of muscle activity. It is therefore imperative that a relaxed atmosphere prevail while the anterior composition is being devised at the chair with the patient present. The patient should be asked to stand, walk, speak, smile and engage in the many acts of facial expression.

Photographs and casts of natural teeth provide a guide for tooth dimensions, shapes and arrangements. Both assist in producing pleasing replacements, the key to aesthetic tooth alignment being asymmetry.

Regardless of whether stock teeth or hand moulded teeth are selected, they must be considered as only the raw material. The prosthodontist must re-contour and reshape each individual tooth according to the part it will play in the completed composition. If there is one solid rule for achieving natural appearance in complete dentures, it is that the anterior teeth must appear separate and distinct from one another.⁸ There must be obvious indications of embrasures.

Patients usually exhibit more concern over the colour of the teeth than any other aesthetic factor. Women frequently desire 'white teeth.' These controversies can generally be resolved by advising the patient that a shade will be selected which blends and conforms to the general colour pattern of the complexion

without being conspicuously light or dark. Actually, the specific numerical shade is relatively unimportant as long as there is a delicate mingling of tones within the composition to duplicate natural conditions. We must avoid discords of colour between the teeth and the face and thus avoid the pitfall of routinely choosing dark teeth for older people.

CONCLUSION

Total aesthetics, involving the appearance of the face and dentures, is the goal of complete dentures that defy detection. This requires a consideration of the psycho-biological factors affecting each patient as well as achieving a harmonious balance between the mouth and face. Pleasing dentures are more readily attained by imitating the asymmetrical arrangement of natural teeth.

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Veterans Administration Centre

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Dentigerous cyst of the maxillary antrum: case report

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The author reports a case of a dentigerous cyst involving the maxillary antrum. An unusual feature was the association of this lesion with a grossly ectopic maxillary third molar. The value of early diagnosis and complete enucleation of the cyst is stressed.

■
L'auteur expose un cas de kyste dentigère situé dans le sinus du maxillaire. Il remarque que l'aspect exceptionnel de cette lésion provenait de la présence d'une troisième molaire ectopique et insiste sur la valeur d'un diagnostic précoce et de l'enucléation complète du kyste.

Grossly ectopic maxillary third molars associated with cystic involvement of the maxillary antrum are infrequently described in the literature.¹⁻³ Although these reports reveal no significant overall sex or racial relation, they do indicate that the incidence of dentigerous (follicular) cysts is greatest in youth and early maturity, thus paralleling dental development.^{4, 5}

A series of studies by Mourshed⁵ has shown that nearly one in four patients examined routinely has unerupted teeth. Dentigerous cysts occur in 3.6 per cent of such patients, a ratio of 1.44 cysts per 100 unerupted teeth. Similar surveys by

Reis Centeno⁶ and Sonesson⁷ are accordant.

CASE REPORT

History and Examination.—An apparently healthy 18 year old girl was examined in the casualty department of the Winnipeg General Hospital, Winnipeg, subsequent to accidental trauma to the head. Precautionary skull radiographs were made. The singular finding was a cyst-like defect involving the right maxillary antrum and adjacent to an ectopic tooth. The patient was referred to the care of an oral surgeon in the dental department.

No symptoms or significant familial history were ascertained. Extra-oral examination revealed no facial asymmetry, paraesthesia or cervical lymphadenopathy. Intra-oral examination showed absence of the maxillary right third molar in an otherwise healthy normal mouth. The teeth of the upper right quadrant responded normally to vitality tests and percussion.

Lateral and Waters radiographic views of the skull (Figures 1 and 2) showed that the right third molar had migrated to a position midway between the orbital floor and the antral floor. A cyst-like lesion appeared to involve the right antrum.

Surgical Procedure.—The patient was admitted to hospital 24 hours prior to op-



FIGURE 1 Lateral view skull radiograph.

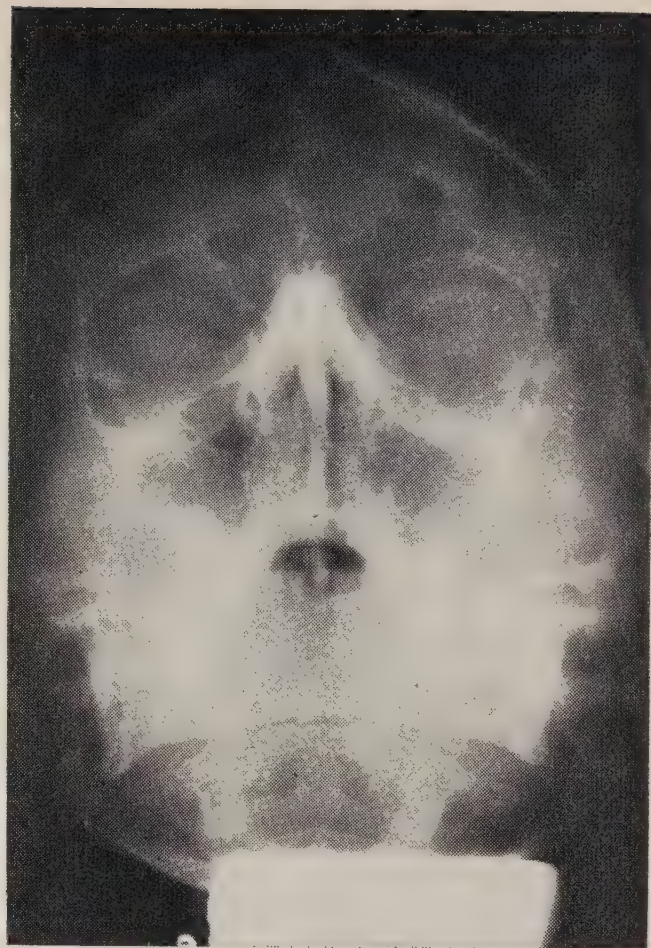


FIGURE 2 Waters view skull radiograph.

eration. A thorough pre-operative medical assessment confirmed her fitness for general anaesthesia and surgery.

Utilizing the Caldwell Luc approach, a flap was reflected in the right buccal sulcus from the first molar to the lateral incisor. Reflection of the periosteum revealed a defect in the anterior wall of the maxillary antrum, situated above and lateral to the canine fossa and having a diameter of about 6 mm. The antral content protruded slightly through the defect.

Access was improved by limited lateral extension of the bony defect, using rongeurs, and the antral content was partially freed by blunt dissection. The lesion was incised and the caseous content with the typical cholesterol sheen was aspirated. Access to the ectopic tooth was thus gained through the cyst. The maxillary right third molar was then elevated gently into the cyst, within the antrum, and removed. The cyst was completely freed from the bony wall by further

gentle blunt dissection and removed intact.

Inspection of the antrum revealed a bony deficiency in the medial maxillary wall communicating with the nasopharynx. The incision was closed with three black silk sutures. Immediate oral and nasal bleeding was minimal.

Postoperative recovery was excellent. The patient was discharged after 24 hours. One week later, when the sutures were removed, healing was satisfactory.

Pathological Report. — Macroscopically, the specimen submitted, measuring 3 x 1 x 0.5 cm., was composed of flattened brown soft tissue. Microscopically, the cyst was lined by a parakeratotic stratified squamous epithelium, 8-12 cells deep, with a very regular basal cell layer and intact basement membrane (Figure 3). Here and there this epithelium was thinned or absent over hypervascular and chronically inflamed connective tissue which was densely infiltrated with plasma

cells (Figure 4). The whole was surrounded by a relatively avascular mature connective tissue capsule. The appearance was consistent with a diagnosis of dentigerous cyst.

DISCUSSION

The value of early diagnosis of follicular cysts is evident.^{1, 3, 8} These asymptomatic lesions can be quite destructive. Ac-

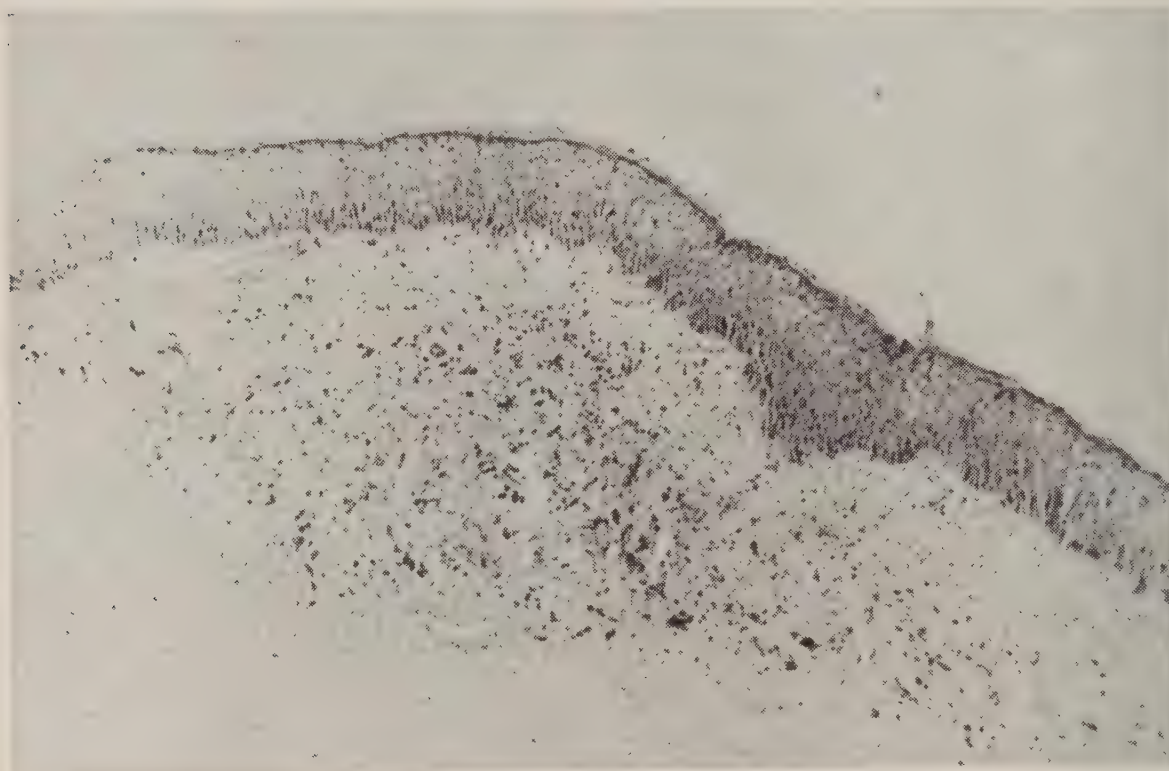


FIGURE 3 A portion of the cyst wall showing typical stratified squamous epithelium. H.E. x 10.



FIGURE 4 A portion of the cyst wall showing an inflamed area denuded of epithelium. H.E. x 10.

according to Mourshed,⁵ 2-2.5 mm. is the critical width of the crypt of an embedded tooth which is suggestive of a probable dentigerous cyst. Apart from absence of infection, deformity, pain or paraesthesia there are other valuable diagnostic aids—notably an incomplete dentition with no history of dental extractions. The lesion is most often associated (in descending order of frequency) with mandibular third molars, maxillary cuspids, mandibular bicuspid, and maxillary third molars.^{5, 7, 9} A curious anomaly is the relative scarcity of reported dentigerous cysts associated with the frequently impacted maxillary third molar.^{2, 4, 5, 7, 10} The other major diagnostic aid is radiography.^{3, 5} Routine radiographic examination is indicated.

Complete enucleation of the cyst is the best surgical method. Variations of the Partch technique offer no advantage. Furthermore, complete enucleation assures availability of the entire cyst lining for examination to exclude the possibility of mural ameloblastoma.^{4, 5, 11, 12} In the case described no specific preparatory precautions were taken to prevent rupture of the cyst wall. Nevertheless, the areas denuded of epithelium and the associated inflammatory changes are noteworthy.¹³

SUMMARY

A report is presented of a dentigerous cyst involving the maxillary antrum and

associated with a grossly ectopic third molar tooth. The value of early diagnosis and the definitive treatment of impacted teeth is discussed.

The author thanks A. G. Parnell, former head of oral surgery, Faculty of Dentistry, University of Manitoba, for assistance and permission to publish this report, and W. G. Young, associate professor of oral pathology, University of Manitoba, for the pathological report.

*Former dental intern, Winnipeg General Hospital, Winnipeg, Manitoba.

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5 Kings Cross Bridge,
London, N.1.

The layman who has been convinced of fluoridation's value is inclined to be passive about it. Those who oppose it do so almost as an act of faith, and they will swallow almost any amount of distorted reasoning to justify that faith.—Montreal Star.

Dental radiographs of interest

The Journal is indebted to J. D. Newby of Prince George, BC, who submitted the illustrated radiographs. The comments are by H. G. Poyton, professor of dental radiology, University of Toronto.

Bilateral Supernumerary Teeth.—Radiographs from R. N., male, aged 22, show two supernumerary teeth in the right mandibular bicuspid region and two in the left mandibular bicuspid region (Figure 1). They are supernumerary rather than supplemental teeth because they are smaller than teeth of the normal series and because their crowns appear to be

slightly malformed. The crown of the posterior supernumerary tooth on the right side shows markedly abnormal development suggestive of invagination of the enamel. On both sides the follicles of the teeth appeared to have merged. This suggests possible early development of dentigerous cysts—more probably on the left than on the right side.

Fourth Molars.—Radiographs from N.H., female, aged 35, show fourth molars in the left posterior maxilla and mandible and in the right maxillary region (Figure 2). In the maxilla it is impossible to determine which is the third molar and which is the supernumerary fourth molar, but the unerupted tooth has caused some resorption of the tooth which has already erupted. The posterior tooth in the mandible, being very small, is probably the supernumerary tooth. It has caused impaction of the third molar. Some observers consider these teeth as evidence of a reversal to the basic primate dentition which contains four molars. Others, who have noted the presence of fourth molars in certain African tribes, consider this a variance of normality rather than an abnormality.

FIGURE 1

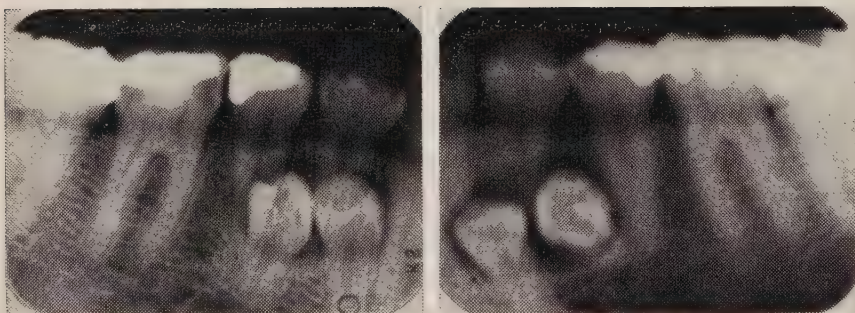
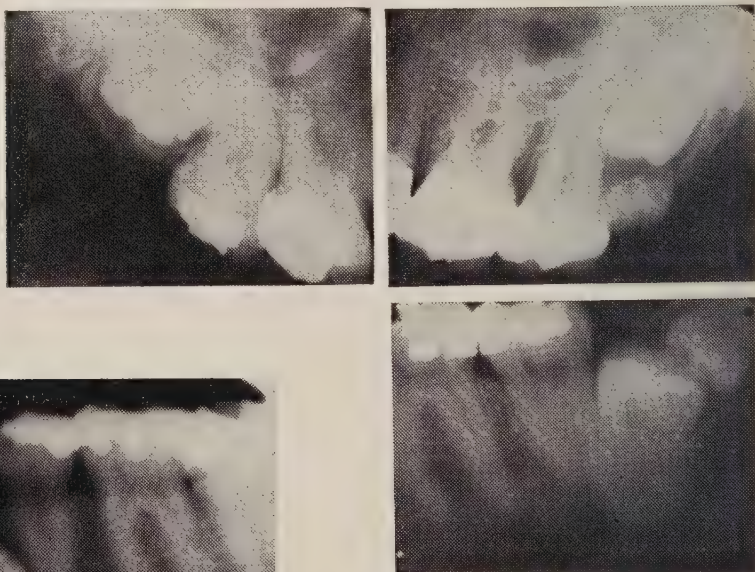
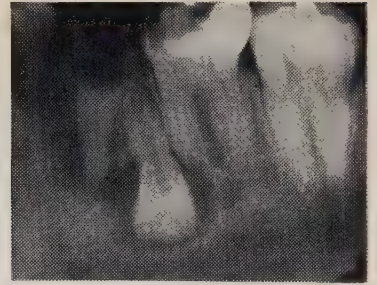


FIGURE 2



Inverted Supernumerary Tooth. — Radiographs from A.F.R., female, aged 24, show an inverted supernumerary tooth in the left mandible between the second bicuspid and first molar (Figure 3). The appearance of the bone around the crown of this tooth suggests the possibility of a small dentigerous cyst. There is rarefying osteitis at the apex of the second bicuspid in close proximity to the radiolucent area surrounding the crown of the inverted supernumerary tooth. Infection could spread from the apical lesion of the

FIGURE 3



second bicuspid to a dentigerous cyst. The extension of this process could have far-reaching consequences.

abstracts • résumés

Etapes de l'évaluation contrôlée d'un analgésique

S. Simard-Savoie. Progrès Odonto-Stomatologique 1:45, 1967.

Le patient visite le dentiste dans un but très précis: la prévention ou le soulagement d'une maladie. Conséquemment il faut se rappeler que le bien-être et le confort du patient donnent au clinicien toute son importance. En thérapeutique dentaire, les analgésiques sont employés pour le soulagement de la douleur. Le clinicien utilise également d'autres classes de médicaments. En 1967, nous croyons que chaque clinicien doit connaître comment on détermine la valeur d'un médicament. Il doit être capable d'évaluer la qualité d'un médicament et cela dans le but de traiter scientifiquement ses patients, qu'il s'agisse de médicaments bien connus ou de médicaments nouveaux.

Cet article fait la revue des principes qui guident l'évaluation d'un analgésique. Les facteurs suivants doivent être considérés lors d'un essai clinique:

1. Comparaison quantitative avec des standards de référence.
2. Contrôle de l'administration et de l'absorption.
3. Technique double aveugle.
4. Attribution des médicaments selon une table de nombres au hasard.
5. Contrôle de l'effet du temps.
6. Le facteur dose.
7. Standardisation des conditions expérimentales.

8. Standardisation de la sélection des sujets et de leur maintien dans l'expérience.

9. Traitement statistique des données.

10. La randomisation.

11. Contrôle de l'objectivité des mesures.

Controlled Evaluation of Analgesics

S. Simard-Savoie. Progrès Odonto-Stomatologique 1:45, 1967.

Pain relief is a major consideration in dental treatment. Analgesic drugs are used for this purpose. Every dentist should therefore know the principles governing the clinical evaluation of such agents. This prepares him to participate in clinical investigations of established as well as new analgesics. The author enumerates and discusses the following factors which affect the design of a therapeutic trial:

1. Quantitative comparison with controls.
2. Control of the administration and absorption of the drugs.
3. Double blind technique.
4. Random allocation of medicaments to the patient.
5. Control of the effect of time.
6. Drug dosage.
7. Clinical methodology.
8. Standardized selection of subjects.
9. Statistical analysis of the data.
10. Randomization.
11. Control of the objectivity of the trial data.

Motivation: a Factor in Denture Treatment

H. A. Collett. J. Prosth. Dent. 17:5, 1967.

Statistical studies show that 90 per cent of the American public is informed about the need for preventive dentistry; yet only about half that number seek the treatment that their education tells them they should have. The study of motivation in relation to denture treatment is extremely complex. An individual's attitudes depend to a considerable degree on his knowledge, and his motivated behaviour is a function of both his knowledge and his attitudes. Motivation in denture treatment is both positive and negative in nature. The patient may be motivated to have dentures constructed or he may be motivated away from this treatment. Other motives may conflict and compete with the motives concerning denture treatment. The patient may be motivated to adjust to his completed dentures or he may be motivated to reject them.

Prevalence of Osteoporosis in High- and Low-Fluoride Areas in North Dakota

D. S. Bernstein, Norman Sadowsky, D. M. Hegsted, C. D. Guri and F. J. Stare. J.A.M.A. 198:499, October 31, 1966.

Radiographs of the lateral lumbar area of the spine were obtained from 1,015 subjects over age 45 who were residing in North Dakota. Three hundred lived in an area where the fluoride content of the water supply was high (4-5.8 ppm) and 715 in an area where it was low (0.15-0.3 ppm). Evidence of osteoporosis, reduced bone density, and collapsed vertebrae was substantially higher in the low-fluoride area, especially in women. Visible calcification of the aorta was significantly higher in the low-fluoride area, particularly in men. Limited information on milk and cheese consumption does not indicate that differences in calcium consumption are a significant factor. Fluoride consumption is important in the prevention of osteoporosis and may also play a significant role in preventing calcification of the aorta.

The Use of Corticosteroids in Reducing Hypersensitivity in Operative Dentistry

Joseph Schwartz. J. Oral Ther. 3:99, 1966.

Operative procedures and thermal changes are sometimes irritating to the pulp and may give rise to pulpal hyperaemia. The anatomical structure of the pulp cavity, with its minute apical opening, does not allow for vascular expansion within its calcified walls. This hyperaemic response leads to a stagnation

of the vascular flow, thereby increasing the intravascular pressure within the pulp. This causes a hypersensitivity which is transitory in nature.

Prednisolone, an anti-inflammatory agent, reduces the permeability of the mast cell wall, thus preventing the release of histamine and heparin which contributes to the inflammation of the pulp brought about by cavity preparation and/or thermal changes transmitted by metallic restorations. The exposed dentinal tubules are permeable to soluble corticosteroids which diffuse into the pulp chamber, exerting a sedative and anti-inflammatory effect. The corticosteroid solution reduces the hyperaemia, thereby decreasing the hypersensitivity within the tooth.

The principal aim of this investigation was to confirm the effectiveness of a complete prednisolone formula (1 per cent prednisolone with 99 per cent chloromonophenol; the chloromonophenol portion being composed of 25 per cent parachlorophenol, 25 per cent metacresol acetate, and 50 per cent USP gum camphor) in relieving hypersensitivity following restorative dental procedures. A secondary purpose was to determine which of the separate active agents contributes to the effectiveness of the complete formula in relieving hypersensitivity. The complete formula, 1 per cent prednisolone alone, and chloromonophenol alone were significantly effective in reducing hypersensitivity when compared to a placebo. The effects of the two separate agents, 1 per cent prednisolone and chloromonophenol, were not significantly different when compared to each other. There was no additive or synergistic effect of the separate active agents. The results demonstrated the contributions of the separate agents to the complete prednisolone formula.

Clinical and Laboratory Evaluation of Streptokinase-Streptodornase in Oral Surgery

C. R. Galloway, E. C. Hinds and Raymond Reid. J. Oral Surg. 25:147, 1967.

When the anti-inflammatory action of streptokinase-streptodornase was evaluated in a double-blind clinical study and in two experiments with rabbits, the enzymes were found to lessen postoperative complications and to increase lysis but to have no effect on wound healing or on incidence of alveolitis. In the clinical study, 100 embedded mandibular third molars were extracted from patients, and the patients were given either the enzyme or a placebo orally. The clinical responses to oral surgery that were evaluated were pain, swelling, and trismus. A trend suggestive of more favorable postoperative response was found among patients given the enzyme.



Preliminary Program National Convention
Canadian Dental Association June 26-29, 1968

Vancouver

**Programme provisoire du Congrès national
de l'Association dentaire canadienne
du 26 au 29 juin 1968**

Presidents' Message

Message des présidents

I welcome this opportunity to invite you personally to attend the forthcoming convention of the Canadian Dental Association in Vancouver in June. I am confident that the scientific and social programs arranged by the convention committee will ensure a very worthwhile meeting. Collectively and individually, we in British Columbia look forward to acting as your 'Hosts on the Coast.'

Je suis heureux d'avoir cette occasion de vous inviter personnellement au prochain congrès de l'Association dentaire canadienne, qui se tiendra à Vancouver, en juin. Je suis certain que les programmes scientifiques et sociaux qu'a organisés le comité du congrès, nous assureront une réunion des plus intéressantes. Nous tous, en Colombie britannique, collectivement et individuellement, serons heureux d'être vos "hôtes sur la côte".

WESLEY P. MUNSIE, President,
Canadian Dental Association
Association dentaire canadienne

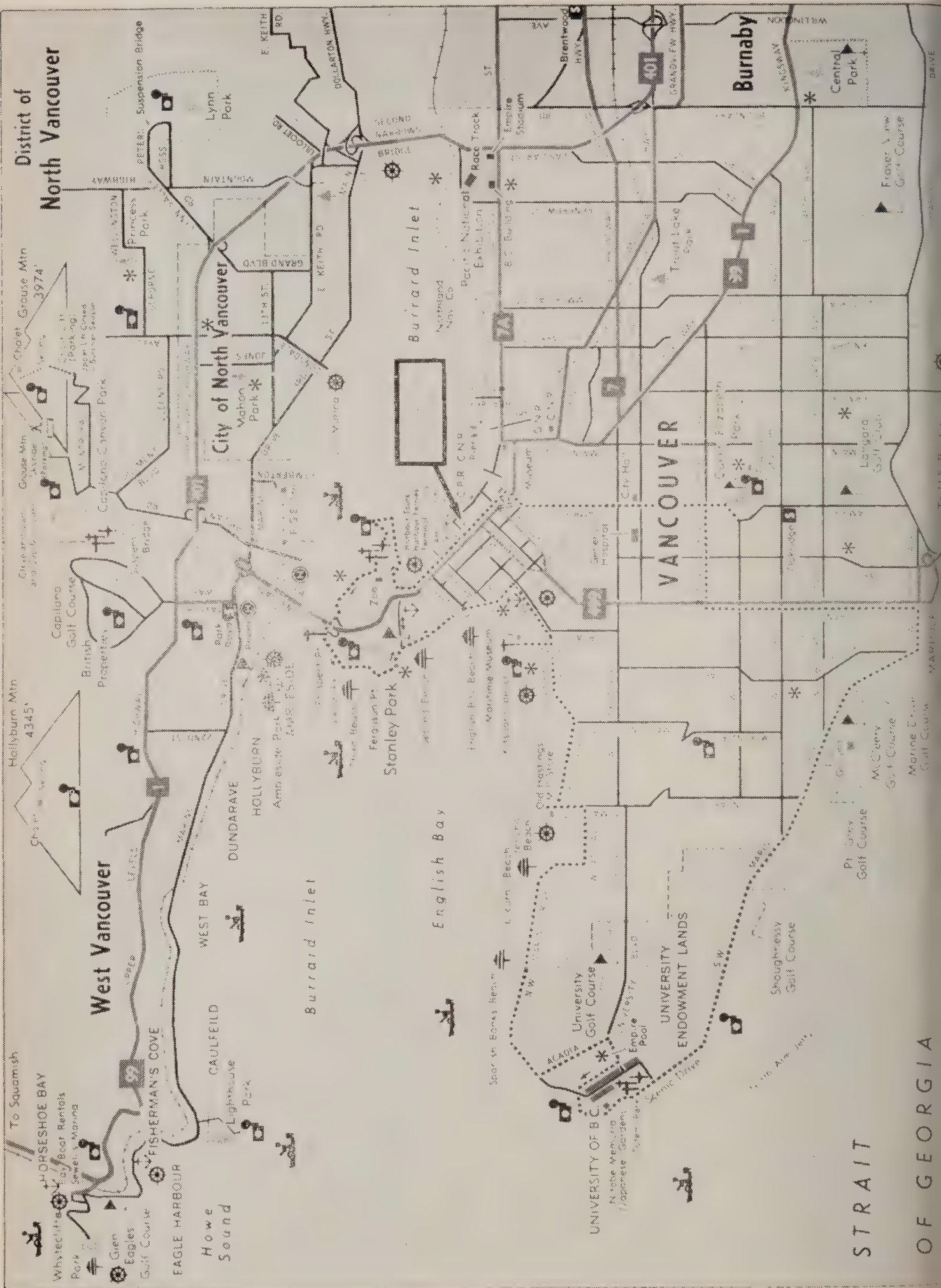




As a displaced 'easterner,' I welcome you to British Columbia. My adopted province boasts the most scenic and picturesque terrain in North America. Her rugged but magnificent coastline, her imposing and challenging mountains, her exciting and historic waterways, her rambling Cariboo ranch land and her luxuriant and bounteous Okanagan Valley stun the imagination with their grandeur. We want to share these physical attributes with you. We want you to enjoy our land and water as we do. We hope your deliberations will be productive, your scientific sessions informative, and your relaxing hours fun-filled and pleasurable. The members of the British Columbia Dental Association join me in wishing you a most enjoyable visit.

C'est en tant qu'ancien habitant de l'Est, que je vous souhaite la bienvenue en Colombie britannique. Ma province d'adoption offre les paysages les plus pittoresques de l'Amérique du Nord. Son littoral sauvage et magnifique, ses montagnes impressionnantes, ses cours d'eau historiques, ses terres immenses pour l'élevage du bétail et la vallée fertile d'Okanagan, tout cela impressionne par sa grandeur. Nous voulons vous faire profiter de toute cette beauté, et vous faire apprécier la splendeur de notre littoral. Nous espérons que vos débats seront productifs, vos réunions scientifiques, intéressantes et vos heures de loisirs agréables. Les membres de la British Columbia Dental Association se joignent à moi, pour vous souhaiter la plus agréable des visites.

A. E. SWANSON, President,
British Columbia Dental Association



City

Vancouver City Museum—Corner of Main and Hastings Streets. Of special interest is the northwest coastal Indian culture from the Stone Age to the peak of their outstanding totemic art. Antique, hand-carved Chinese furniture and rare objects of jade, crystal, ceramics and bronze, with interesting objects from other Oriental sources. Natural history. Monthly rotation of paintings.

Chinatown—East Pender St. A fascinating Oriental section of the city, of interest to all visitors. Authentic Chinese goods can be bought at exotic stores while excellent restaurants feature genuine Chinese dishes.

Queen Elizabeth Theatre and Playhouse—Georgia and Hamilton Streets. Two of the world's finest theatres with a total seating capacity of 3,500. The Theatre contains the largest stage in Canada with the most modern lighting and sound equipment.

Vancouver Public Library—Robson and Burrard Streets. This new building houses over 225,000 volumes including fiction and an excellent central reference department. A large collection of books on the history and geography of the Pacific Northwest is available.

BC Hydro and Power Authority Building—Burrard and Nelson Streets. The most modern skyscraper in Western Canada. Observation area on the 19th floor gives a magnificent view of the city and surroundings. Open 8.30 a.m.-4.45 p.m. Monday to Friday.

Vancouver Art Gallery—1145 W. Georgia St. Permanent collection of paintings and sculpture as well as interesting specimens of native Indian work. Open Tuesday to Saturday, 10.00 a.m.-5.00 p.m.; Friday evening 7.00 p.m.-10.00 p.m.; Sunday 2.00 p.m.-5.00 p.m. Small admission charge.

Stanley Park—Five minutes' drive from the city centre along W. Georgia St. A thousand acres of native forest threaded with footpaths, and 11 miles of motor roads. Zoo, aquarium, picnic grounds and sports facilities.

Totem Poles—Native to British Columbia, these are to be found near Brockton Point in Stanley Park, at the Pacific National Exhibition grounds and in 'Totem Grove' near the University of British Columbia at Point Grey. In Hadden Park, foot of Cypress St., there is a replica of the 100 ft. totem pole presented to Queen Elizabeth in 1958.

First Iron Horse—Kitsilano Beach on the south shore of English Bay. 'Old 374' was the first passenger train to travel from Montreal to Vancouver, arriving here on May 23, 1887.

Vancouver Maritime Museum—Waterfront at Hadden Park at the foot of Cypress St. Built as Vancouver's project for BC's Centennial in 1958. Rotating exhibits on topics relating to man and the sea. RCMP schooner St. Roch, preserved in drydock next to the Museum, twice conquered the Northwest Passage. For information on hours of the Museum and St. Roch telephone 731-8188.

University of British Columbia—Western extremity of Point Grey. One of the most beautifully situated campuses in North America, the site overlooks magnificent views of the North Vancouver mountains and Howe Sound. Empire Pool, constructed for the British Empire Games in 1954, is the largest and finest competitive pool in Canada. Small admission charge. Special visiting hours.

Queen Elizabeth Park—Little Mountain off Cambie and 33rd Streets. Observation Post, the highest point in Vancouver proper, provides a beautiful panoramic view of the city and harbour with the North Shore mountains as a magnificent backdrop. Arboretum with many

coastal trees and shrubs interspersed with lawn, flower gardens and a stream.

Exhibition Park—East Hastings and Renfrew Streets. Home of the Pacific National Exhibition and the BC Lions football team.

Burnaby

Simon Fraser University—On top of Burnaby Mountain. The site enjoys many beautiful views. Opened in 1965, the University is a bold concept of integrated and unique design, with powerful buildings executed in modern materials with classic effect.

North Shore

British Properties—Exclusive residential area of West Vancouver. From its heights there is a beautiful panoramic view of the metropolitan area.

Hollyburn Ridge—Accessible by car to parking lot and then by chairlift to 4,345 foot summit.

Horseshoe Bay—Near western end of the west shore Marine Drive. Rendezvous for fishermen. Home of the giant salmon. Family picnics and sightseers enjoy this lovely spot. Excellent facilities for boating, swimming and sports fishing.

Capilano Canyon and Suspension Bridge—World famous swinging bridge over a 210 foot gorge.

Cleveland Dam—A 665 acre man-made lake was created by the huge dam. It supplies 200 million imperial gallons of water to 14 municipalities in the Greater Vancouver Water District every day.

Grouse Mountain—Breathtaking scenery. Chairlift operates daily. Elevation 4,200 ft.

Lynn Canyon Park—Quiet, natural park on the north shore. Beautiful paths and walks, good fishing pool, natural swimming pool and a suspension bridge.

General Information • Renseignements

Board of Governors Meeting

The annual meeting of the Board of Governors of the Canadian Dental Association will be held at the Vancouver Hilton Hotel beginning at 9.30 a.m. on Monday, June 24 and continuing through Wednesday, June 26, 1968. The meeting is open to all members of the Association who are urged to attend and participate in the deliberations.

National Convention

The national convention of the Canadian Dental Association will begin on Wednesday, June 26 and continue to Saturday, June 29, 1968.

Registration

A form for advance registration and hotel reservation is included in this issue of the Journal. Please follow the instructions on this form carefully and mail it with your registration fee to CDA-BCDA Convention, 325 - 925 West Georgia Street, Vancouver 1, BC.

Scientific Program

The scientific program will begin on Thursday morning, June 27, at 9.00 a.m. in the Vancouver Hilton Hotel. A full range of essays, clinical lectures, round table discussions and table clinics is planned.

Table Clinics

The Vancouver and District Dental Society is famed for the table clinics featured at its annual Mid-Winter Clinic which attracts countless dentists from British Columbia and adjacent provinces and states. VDDS study clubs will spon-

Réunion du Conseil des Gouverneurs

La réunion annuelle du Conseil des Gouverneurs de l'Association dentaire canadienne aura lieu à l'hôtel Vancouver Hilton, du 24 au 26 juin 1968. Tous les membres peuvent assister à ces assemblées et prendre part aux délibérations; les dirigeants de l'Association les y invitent avec instance.

Congrès national

Le congrès national de l'Association dentaire canadienne aura lieu du mercredi, 26 juin, au samedi, 29 juin 1968.

Inscription

Vous trouverez dans le numéro de ce journal une formule d'inscription et de réservation pour l'hôtel. Veuillez vous conformer aux instructions qu'elle vous donne et l'envoyer avec vos droits d'inscription à CDA-BCDA Convention, 325 - 925 West Georgia Street, Vancouver 1, BC.

Programme scientifique

Le programme scientifique commencera jeudi matin, le 27 juin à 9 h., à l'hôtel Vancouver Hilton. On a prévu une série complète de communications, conférences cliniques, discussions générales et démonstrations cliniques.

Démonstrations cliniques

La réputation des démonstrations cliniques que donne la Vancouver and District Dental Society à l'occasion de sa clinique d'hiver, n'est plus à faire. Elles attirent



...sor 108 table clinics at the national convention—Thursday, June 27, from 10.00 a.m.; Friday and Saturday, June 28-29, from 9.00 a.m.

Social Events

REGISTRATION COCKTAIL PARTY

This event will be staged in the ballroom of Vancouver's fabulous Bayshore Inn overlooking Stanley Park, Wednesday, June 26, from 6.00 to 8.00 p.m.

STANLEY PARK BARBECUE

A Paul Bunyan Salmon and Beef Barbecue and Indian Ceremonial Dance at HMCS Discovery in the heart of Vancouver's famed Stanley Park. Thursday, June 27, from 6.00 to 8.00 p.m.

CHINATOWN NIGHT

An unparalleled event complete with Chinese Dinner (special menu), 'Lion Dance' and fireworks display in the second largest Chinese community outside the Orient. Friday, June 28, 6.00 to 8.00 p.m.

un grand nombre de dentistes de la Colombie britannique, des provinces et des états voisins. Les groupes d'étude de la VDDS commanditeront 108 démonstrations cliniques du même genre au cours du congrès national, le jeudi 27 juin, à partir de 10 h. du matin et les vendredi et samedi 28 et 29 juin à 9 h. du matin également.

Réceptions

COCKTAIL D'INSCRIPTION

Il aura lieu le mercredi 26 juin de 6 h. à 8 h. du soir, dans la salle de bal du fameux Bayshore Inn de Vancouver.

BARBECUE AU PARC STANLEY

Un barbecue Paul Bunyan, de bœuf et de saumon, et une danse de cérémonie indienne auront lieu à bord du HMCS Discovery, au cœur du fameux Parc Stanley, de Vancouver, le jeudi 27 juin de 6 h. à 8 h. du soir.

UNE NUIT DANS LA VILLE CHINOISE

Un événement sans pareil avec dîner chinois (menu spécial), danse du lion et feux d'artifice, dans la deuxième ville chinoise du monde, en dehors de l'Orient.

LA FIESTA DU PRÉSIDENT

Un banquet et un bal en l'honneur du Président et de Madame W. P. Munsie dans les salles British Columbia et Pacific, de l'hôtel Vancouver Hilton. Des célébrités se produiront à cette occasion, samedi le 29 juin, de 6 h. à minuit.

DISTRACTIONS POUR LES DAMES

Deux événements principaux: un petit déjeuner avec un conférencier célèbre au Bayshore Inn, le jeudi 27 juin et un déjeuner au champagne avec défilé de mode, au théâtre Queen Elizabeth, le vendredi 28 juin.



PRESIDENT'S FIESTA

A banquet and dance honouring President and Mrs. W. P. Munsie in the British Columbia and Pacific Ballrooms of the Vancouver Hilton Hotel. Name entertainers will be featured. Saturday, June 29, 6.00 p.m. to 12.00 midnight.

LADIES' ENTERTAINMENT

Two major events for ladies: breakfast with a celebrity speaker at the Bayshore Inn on Thursday, June 27; champagne brunch and fashion show at the Queen Elizabeth Theatre on Friday, June 28.

Art and Hobby Exhibit

Model railways, jewellery, taxidermy, fly-tying and painting are just a few examples of the dentist's leisure-time skill and talent to be displayed at the Arts, Craft and Hobby Show. Those who intend to exhibit samples of their work should inform the Convention Secretary, 325 - 925 West Georgia Street, Vancouver 1, BC, as soon as possible.

Post-Convention Tours

Delegates who wish to visit Mexico, California, Alaska or Hawaii after the national convention are invited to use the facilities of Thos. Cook & Son Ltd., Canadian Pacific Airlines and Air Canada for their travel plans.



British Columbia Government Photograph

Exposition artisanale et artistique

Au "Arts, Crafts et Hobby Show" les modèles réduits de chemin de fer, les bijoux, la taxidermie, les leurres artificiels pour la pêche et les tableaux seront la preuve tangible des talents que manifestent les dentistes en dehors de leur profession. Que ceux qui veulent exposer leurs œuvres veuillent bien se mettre en rapport, dès que possible, avec le secrétaire du congrès, 325-925 West Georgia Street, Vancouver 1, BC.

Voyages après le congrès

Nous invitons les délégués qui désirent visiter le Mexique, la Californie, l'Alaska ou Hawaii après le congrès, à utiliser les services de Thos. Cook & Son Ltd., Canadian Pacific Airlines et Air Canada pour établir l'itinéraire de leur voyage.

Scientific Program • Programme scientifique

Thursday, June 27

9:00	G. D. Stibbs, Seattle The unity of dentistry
10:00	C. A. Sweet, Walnut Creek, Calif. Pulp therapy for children
10:00	T. J. Harrop, Vancouver Teaching and research
10:00	Table clinics (all day)
10:30	Rex Ingraham, Los Angeles Amalgam
10:30	S. J. Kloehn, Appleton, Wisconsin Some new concepts in analysis and treatment of malocclusion (Grieve Memorial Lecture)
10:30	Pierre Dow, Vancouver Inducting of apical growth in the blunderbuss canal (essay presented in English and French)
2:30	Saul Schluger, Seattle Maintenance of periodontic therapy through aftercare
2:30	D. H. Glick, Los Angeles Retrospective endodontics
2:30	Ferdinando Serri, Pavia, Italy Oral changes in some skin diseases
2:30	S. J. Fisher, Victoria Oral surgery
4:00	S. C. Robinson, Portland, Oregon Physiological placement of anterior teeth
4:00	Rex Ingraham, Los Angeles Four-handed dentistry

Jeudi, le 27 juin

9 h.	G. D. Stibbs, Seattle La profession dans son ensemble
10 h.	C. A. Sweet, Walnut Creek, Calif. Thérapie de la pulpe chez les enfants
10 h.	T. J. Harrop, Vancouver Enseignement et recherche
10 h.	Démonstrations cliniques (toute la journée)
10 h.30	Rex Ingraham, Los Angeles Amalgame
10 h.30	S. J. Kloehn, Appleton, Wisconsin Certaines conceptions modernes de l'analyse et du traitement des malocclusions (conférence Grieve Memorial)
10 h.30	Pierre Dow, Vancouver Endodontie (conférence présentée en français et en anglais)
2 h.30	Saul Schluger, Seattle Traitement périodontique: phase d'entretien
2 h.30	D. H. Glick, Los Angeles Rétrospective de l'endodontie
2 h.30	Ferdinando Serri, Pavie, Italie Dermatologie et muqueuses buccales
2 h.30	S. J. Fisher, Victoria Chirurgie buccale
4 h.	S. C. Robinson, Portland, Oregon Les dents antérieures et leur position physiologique
4 h.	Rex Ingraham, Los Angeles Dentisterie à quatre mains

Friday, June 28

- 9:00 Saul Schluger, Seattle
Management of the periodontic pocket
- 9:00 R. E. Jordan and William Teteruk, London, Ont.
Restorative dentistry
- 9:00 Rex Ingraham, Los Angeles
Fundamentals of occlusion
- 9:00 W. M. Joiner and E. Bannister, Vancouver
Fitness for the modern dentist
- 9:00 Table clinics (all day)
- 10:30 G. D. Stibbs, Seattle
Dentistry for the teenager
- 10:30 F. W. Musaph, Vancouver
Disorders of the temporomandibular joint
- 11:00 A. H. L. Campbell, Vancouver
Crown and bridge abutment preparation and pattern
- 2:00 Round Table: Prepaid dental plans
W. M. Joiner, Vancouver, moderator
- 2:30 CDA Symposium: Dental health plan for children
- 3:30 Rex Ingraham, Los Angeles
Occlusion
- 3:30 F. L. Jacobson, Seattle
Amalgam technique
- 3:30 Jean T. Hodson, Seattle
Compaction of pure gold restorative materials

Saturday, June 29

- 9:00 G. D. Stibbs, Seattle
Cast restorations
- 9:00 Ferdinando Serri, Pavia, Italy
Oral mucosa changes in some skin diseases (essay presented in English and French)
- 9:00 F. L. Jacobson, Seattle
Amalgam technique
- 9:00 Table clinics (all day)
- 9:30 J. D. Spouge, Vancouver
Oral pathology
- 10:00 Round Table: Occlusion
A. W. Moore, Seattle, moderator

Vendredi, le 28 juin

- 9 h. Saul Schluger, Seattle
Traitement des sacs périodontiques
- 9 h. R. E. Jordan et William Teteruk, London, Ont.
Dentisterie restauratrice
- 9 h. Rex Ingraham, Los Angeles
Occlusion
- 9 h. W. M. Joiner et E. Bannister, Vancouver
La santé du dentiste
- 9 h. Démonstrations cliniques (toute la journée)
- 10 h.30 G. D. Stibbs, Seattle
La dentisterie pour adolescents
- 10 h.30 F. W. Musaph, Vancouver
L'articulation temporo-mandibulaire
- 11 h. A. H. L. Campbell, Vancouver
Ponts et couronnes
- 2 h. Table ronde: les programmes dentaires prépayés
W. M. Joiner, Vancouver, président
- 2 h.30 Colloque de l'ADC: un programme dentaire à l'intention des enfants
- 3 h.30 Rex Ingraham, Los Angeles
Occlusion
- 3 h.30 F. L. Jacobson, Seattle
Restaurations en amalgame
- 3 h.30 Jean T. Hodson, Seattle
Restaurations en or

Samedi, le 29 juin

- 9 h. G. D. Stibbs, Seattle
Restaurations en or coulé
- 9 h. Ferdinando Serri, Pavie, Italie
Les maladies de la peau et les muqueuses buccales (conférence présentée en français et en anglais)
- 9 h. F. L. Jacobson, Seattle
Restaurations en amalgame
- 9 h. Démonstrations cliniques (toute la journée)
- 9 h.30 J. D. Spouge, Vancouver
Pathologie buccale
- 10 h. Table ronde: occlusion
A. W. Moore Seattle, président

Sections and Special Groups

The following Canadian Dental Association sections have scheduled scientific meetings in Vancouver:

Canadian Society of Dentistry for Children Canadian Academy of Paedodontics

A two-day scientific program on dentistry for children, open to general convention delegates, is scheduled for Thursday and Friday, June 27-28. The opening lecture will be delivered at 9.00 a.m. on Thursday in the ballroom of the Hotel Georgia. C. A. Sweet, Walnut Creek, California, will speak on 'Pulp Therapy in Paedodontics' at the Vancouver Public Library Auditorium at 10.30 a.m. The program

Sections et groupes spéciaux

Plusieurs sections de l'Association dentaire canadienne ont organisé des réunions scientifiques à Vancouver.

Société canadienne de dentisterie pour enfants Académie canadienne de pédodontie

Il a été prévu pour les jeudi et vendredi, 27 et 28 juin, un programme scientifique de deux jours sur la dentisterie pour enfants, ouvert aux délégués du congrès général. La conférence d'inauguration aura lieu le jeudi à 9 h., dans la salle de bal à l'hôtel Georgia. Le Dr C. A. Sweet de Walnut Creek, Californie, parlera de



reverts to the Kent Room of the Hotel Georgia at 2.30 p.m. on Thursday afternoon when Dr. Sweet discusses 'Paedodontics of Yesterday and Today.' An all-Canadian program begins at 9.00 a.m. and resumes at 2.00 p.m. on Friday in the Kent Room, Hotel Georgia. Speakers and topics: G. M. Jinks, Vancouver, 'Fluoride-Impregnated Cements;' E. J. Hyde, Vancouver, 'Lecturing to the Public on Dental Health;' C. R. Castaldi, Winnipeg, 'Teenage Dentistry;' and R. J. O'Neil, Vancouver, 'Organization of Equipment.' Canadian Academy of Paedodontics business meeting on Friday at 10.30 a.m. in the Kent Room, Hotel Georgia. Canadian Society of Dentistry for Children executive meeting on Saturday morning in the Kent Room, Hotel Georgia. Further information from G. M. Jinks, 1701 West Broadway, Vancouver 9, BC.

Canadian Academy of Endodontics

A two-day program is scheduled for Tuesday and Wednesday, June 25-26, at the Hotel Georgia. Renowned Vancouver radiologist H. M. Worth will deliver the opening lecture on Tuesday at 9.00 a.m. Bernard Zeldow, Seattle, will speak at 10.30 a.m. Annual business meeting at 3.30 p.m. Evening cocktail party at the home of CAE President Clifford Ames. On Wednesday D. H. Glick, Los Angeles, will deliver an all-day lecture on 'An Overall Endodontic Approach.' Dr. Glick will also address a general convention session on Thursday, June 27, at 2.30 p.m. Further information from Clifford Ames, Suite 1014, 750 West Broadway, Vancouver 9, BC.

Canadian Society of Orthodontists

A three-day meeting is scheduled for Thursday to Saturday, June 27-29, at the Queen Anne Lounge, Hotel Georgia. Daily breakfast at 8.30 a.m. Speakers and topics: A. J. Haas, Cuyahoga Falls, Ohio, 'Palate Expansion Technique;' W. R. Mayne, Salem, Massachusetts, 'Serial Extraction.' Further information from A. M. Hayes, Suite 1004, 750 West Broadway, Vancouver 9, BC.

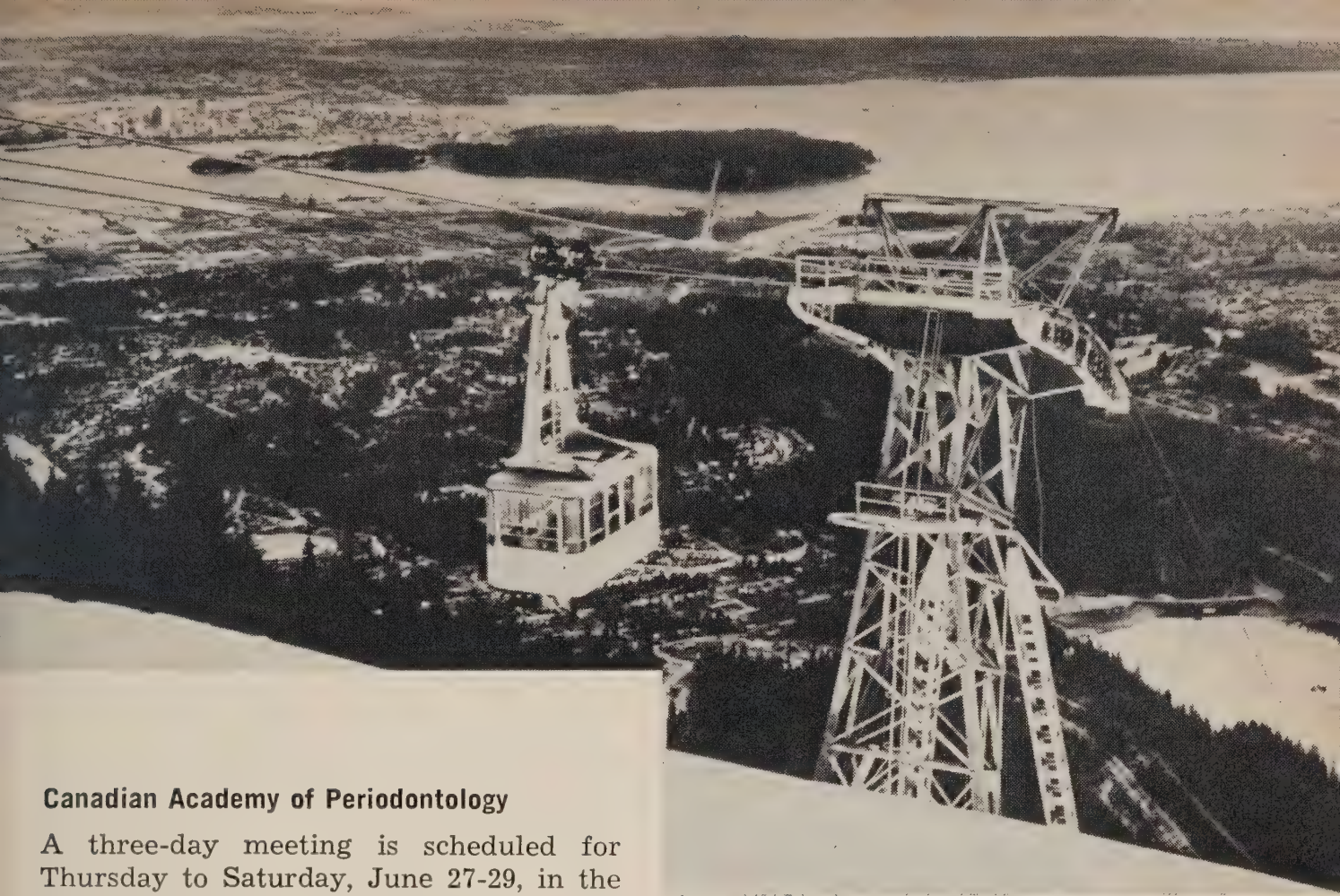
"la thérapie de la pulpe en pédodontie" à l'Auditorium de la bibliothèque publique de Vancouver, à 10 h.30. Le programme continuera dans la salle Kent de l'hôtel Georgia, à 2 h.30, jeudi après-midi lorsque le Dr Sweet parlera de "la pédodontie hier et aujourd'hui". Un programme entièrement canadien commencera à 9 h. et continuera à 2 h, vendredi, dans la salle Kent de l'hôtel Georgia. Les orateurs et les sujets dont ils traiteront seront les suivants: le Dr G. M. Jinks, Vancouver, "ciment imprégné de fluorure", le Dr E. J. Hyde, Vancouver, "Communication au public sur la santé dentaire", le Dr C. R. Castaldi, Winnipeg, "la dentisterie pour les adolescents" et le Dr R. J. O'Neil, Vancouver, "organisation de l'équipement". La réunion de l'Académie canadienne de pédodontie aura lieu le vendredi, à 10 h.30, dans la salle Kent de l'hôtel Georgia. La réunion administrative de la Société canadienne de dentisterie pour enfants se tiendra le samedi matin, dans la salle Kent de l'hôtel Georgia. Pour plus amples renseignements, veuillez vous adresser au Dr G. M. Jinks, 1701 West Broadway, Vancouver 9, BC.

Académie canadienne d'endodontie

Il a été prévu un programme de deux jours, les mardi et mercredi 25 et 26 juin, à l'hôtel Georgia. Un radiologiste bien connu, le Dr H. M. Worth, de Vancouver, fera la conférence d'inauguration, le mardi à 9 h. du matin. Le Dr Bernard Zeldow, de Seattle, parlera à 10 h.30. La réunion annuelle se tiendra à 2 h. Un cocktail aura lieu le soir au domicile du président de l'ACE, le Dr Clifford Ames. Le mercredi, le Dr D.H. Glick de Los Angeles donnera une conférence qui durera toute la journée sur "un concept endodontique global". Le Dr Glick s'adressera également au congrès général, le jeudi 27 juin à 2 h.30. Pour plus amples renseignements, veuillez vous mettre en rapport avec le Dr Clifford Ames, suite 1014, 750 West Broadway, Vancouver 9, BC.

Société canadienne des orthodontistes

Une réunion de trois jours aura lieu au Queen Anne Lounge de l'hôtel Georgia



Canadian Academy of Periodontology

A three-day meeting is scheduled for Thursday to Saturday, June 27-29, in the York Room, Hotel Georgia. Saul Schluger, Seattle, will be the speaker. Sessions: Thursday afternoon; Friday all day; Saturday morning. Further information from J. D. Stewart, Suite 690, 3550 Côte des Neiges, Montreal, Que.

Canadian Academy of Restorative Dentistry

A two-day meeting is scheduled for Tuesday and Wednesday, June 25-26, at the Faculty of Dentistry, University of British Columbia. A workshop on 'Advanced Restorative Dentistry with Particular Reference to Occlusion' begins on Tuesday morning at 8.30 a.m. Topics: 'The Periodontist and Occlusion,' 'Hinge Axis Rationale' and 'Advanced Restorative Dentistry—Case Presentations.' Luncheon, 12.30 p.m., at the Faculty Club. Panel discussion at 2.00 p.m. Table and chair-side clinics at 3.00 p.m. Tour of the new UBC Faculty of Dentistry at 4.00 p.m. Social hour and informal dinner. The regular scientific meeting begins on Wednesday morning at 8.30 a.m. Theme: 'Occlusion—Its Relationship to Restorative Dentistry and the Periodontium.' Topics: 'The Periodontic Approach to Occlusion,' 'Procedure of Occlusal Correction,' 'Cusp-Fossae Relationship' and 'Multiple Restorations.' Luncheon at 12.30 p.m. Panel discussion at 2.00 p.m. Table and chair-

du jeudi 27 au samedi 29 juin. Le petit déjeuner sera servi tous les matins à 8h.30. Les orateurs et leurs sujets seront les suivants: le Dr A. J. Haas, Cuyahoga Falls, Ohio, "techniques d'expansion du palais", le Dr W. R. Mayne, Salem, Massachusetts, "extraction en série". Pour plus amples renseignements, veuillez vous adresser au Dr A. M. Hayes, suite 1004, 750 West Broadway, Vancouver 9, BC.

Académie canadienne de périodontologie

On a prévu une réunion de trois jours, du jeudi 27 au samedi 29 juin, dans la salle York de l'hôtel Georgia. Le Dr Saul Schluger de Seattle sera l'orateur. Les séances se tiendront le jeudi après-midi, le vendredi toute la journée et le samedi matin. Pour plus amples renseignements, veuillez vous adresser au Dr J. D. Stewart, suite 690, 3550 Côte des Neiges, Montréal, Qué.

Académie canadienne de dentisterie restauratrice

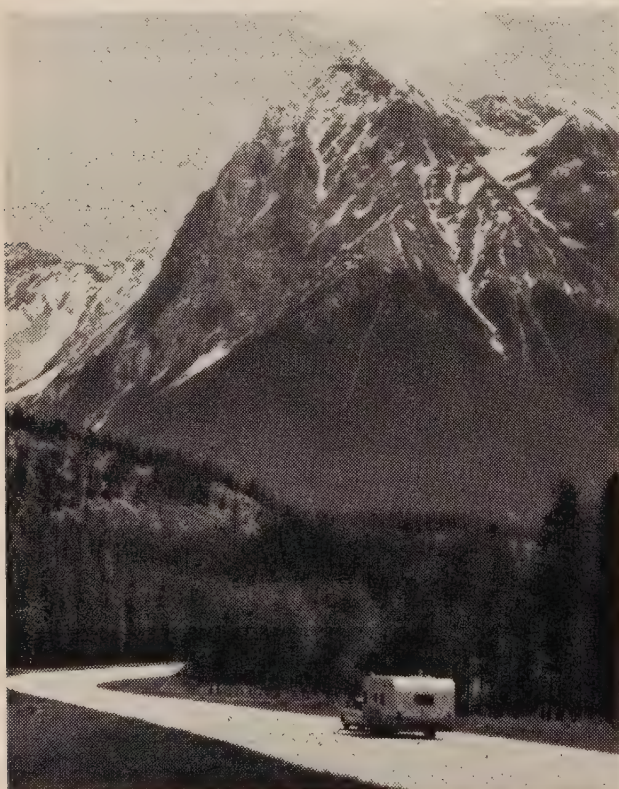
Une réunion de deux jours a été prévue les mardi 25 juin et mercredi 26, à la Faculté dentaire de l'Université de Colom-

side clinics at 3.00 p.m. CARD annual general meeting at 4.00 p.m. Annual mixed dinner. Further information from W. R. Scott, 1006-925 West Georgia Street, Vancouver 1, BC.

Canadian Academy of Prosthodontics

A one-day meeting is scheduled for Thursday, June 27, at the Hotel Georgia. Registration at 8.00 a.m. Morning session begins at 8.30 a.m. Speakers and topics: S. C. Robinson, Portland, Oregon, 'Physiological Positioning of Anterior Teeth;' H. S. Wood, Edmonton, 'Some Aspects of Oral Rehabilitation;' E. N. M. Pottinger, Vancouver, 'Preparation and Care of the Tissues in Prosthodontics.' Luncheon at 12.00 noon. Afternoon session begins at 2.00 p.m. Speakers and topics: R. C. McClelland, Edmonton, 'Comparison of Materials Used for Denture Clasp Construction;' G. A. Zarb, Toronto, 'An Investigation of the Influence of Removable Partial Denture Prosthesis on the Oral Tissues;' M. L. Perel, Montreal, 'Attachments in Periodontic Prosthetics.' Further information from A. D. Fee, Faculty of Dentistry, University of Alberta, Edmonton, Alta.

British Columbia Government Photograph



bie britannique. Le mardi matin, à 8 h.30, commencera une séance d'étude sur "la dentisterie restauratrice avancée et l'occlusion". Sujets: "le périodontiste et l'occlusion", "l'analyse de l'axe de rotation" et "la dentisterie restauratrice avancée — cas cliniques". Déjeuner à midi et demie au Club de la Faculté. Panel à 2 heures. Démonstrations cliniques à 3 heures. Visite de la nouvelle Faculté dentaire de UBC à 4 heures. Heure de détente et dîner libre. Les réunions scientifiques normales commenceront le mercredi matin à 8 h.30. Thème: "l'occlusion — sa relation avec la dentisterie restauratrice et le périodontium". Sujets: "concept périodontique de l'occlusion", "technique de la correction occlusale", "relation cuspside-fosse" et "restaurations multiples". Déjeuner à midi et demie. Panel à 2 heures. Démonstrations cliniques à 3 heures. Réunion générale annuelle à 4 heures. Dîner annuel avec les épouses des dentistes. Pour plus amples renseignements, veuillez vous adresser au Dr W. R. Scott, 1006-925 West Georgia Street, Vancouver, BC.

Académie canadienne de prosthodontie

Une réunion d'un jour a été prévue pour le jeudi 27 juin, à l'hôtel Georgia. Inscription à 8 h. du matin. La séance commencera à 8 h.30. Les conférenciers et les sujets seront les suivants: Le Dr S. C. Robinson, Portland, Oregon, "position physiologique des dents antérieures", le Dr H. S. Wood, Edmonton, "certains aspects de la réhabilitation orale"; E. N. M. Pottinger, Vancouver, "préparation et soin des tissus en prosthodontie." Déjeuner à midi. La séance de l'après-midi commencera à 2 heures. Orateurs et sujets: R. C. McClelland, Edmonton, "comparaison des matériaux employés pour la construction des crochets de prothèse"; G. A. Zarb, Toronto, "une enquête sur l'influence de la prothèse partielle amovible sur les tissus buccaux", M. L. Perel, Montréal, "insertions des prothèses maxillo-faciales périodontiques". Pour plus amples renseignements, veuillez vous adresser au Dr A. D. Fee, Faculté dentaire, Université de l'Alberta, Edmonton, Alta.

Essayists and Clinicians

GERALD D. STIBBS, Seattle, Washington
Professor of operative dentistry and fixed partial dentures, chairman of the Department of Operative Dentistry, and director of the Dental Clinic, School of Dentistry, University of Washington; instructor, Elsperman Gold Foil Seminar, Seattle; contributing editor, *Journal of Prosthetic Dentistry*.

SAUL S. SCHLUGER, Seattle, Washington
Professor and chairman of the Department of Periodontics and director of the Graduate Education Program, School of Dentistry, University of Washington; contributing author of *Periodontal Therapy* (Mosby) and *An Introduction to Periodontia* (Mosby).

REX INGRAHAM, Los Angeles, California
Professor and chairman of the Department of Operative Dentistry and director of the Human Factors in Dentistry Research Division, School of Dentistry, University of Southern California, Los Angeles; staff member, Presbyterian Hospital, Olmstead; consultant, Long Beach Veterans Hospital; contributing author of *Atlas on Gold Foil and Rubber Dam Procedures* (Unitro-College Press) and *Atlas of Cast Gold Procedures* (Unitro-College Press).

SILAS J. KLOEHN, Appleton, Wisconsin
Graduate of Marquette University Dental College, Milwaukee; graduate of University of Illinois Graduate Department of Orthodontics; manager of the *Angle Orthodontist*.

CHARLES A. SWEET, Walnut Creek, California

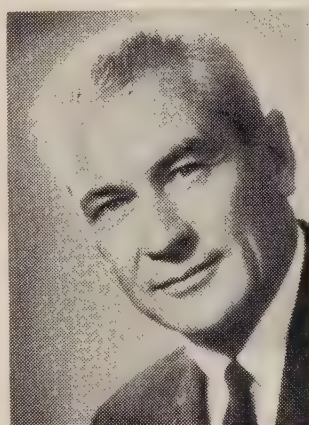
Clinical professor of paedodontics, School of Dentistry, University of the Pacific, San Francisco; former supervisor of dental health education, Oakland Public

Conférenciers et Cliniciens

GERALD D. STIBBS, Seattle, Washington
Professeur de dentisterie opératoire et de prothèses partielles fixes, président du département de dentisterie opératoire et directeur de la clinique dentaire, Faculté dentaire de l'Université de Washington; instructeur au séminaire d'aurification Elsperman, Seattle; rédacteur surnuméraire du *Journal of Prosthetic Dentistry*.

SAUL S. SCHLUGER, Seattle, Washington
Professeur et président du département de périodontie et directeur du programme d'enseignement gradué à la Faculté dentaire de l'Université de Washington. Auteur d'articles publiés dans deux ouvrages: *Periodontal Therapy* (Mosby) et *An Introduction to Periodontia* (Mosby).

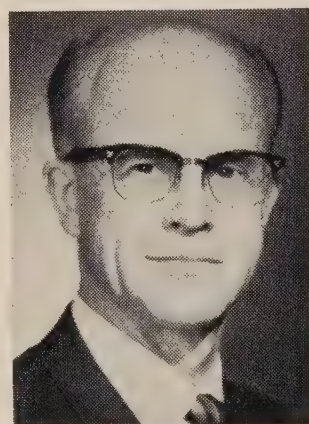
Fabian Bachrach



Rex Ingraham



Saul Schluger



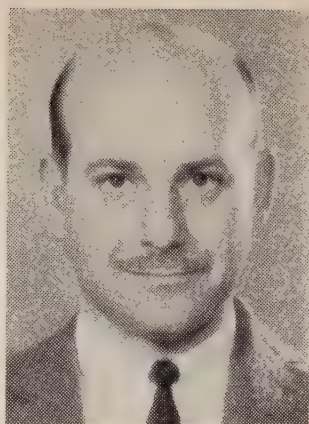
G. D. Stibbs



G. M. Jinks



C. A. Sweet

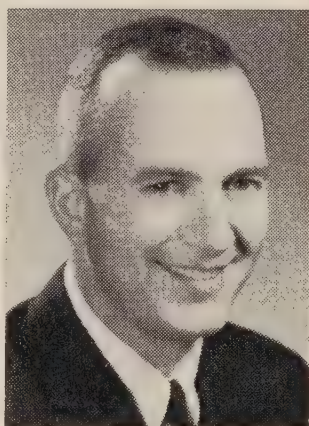


D. H. Glick

W. J. Pechman



S. J. KloeHN



A. J. Haas

Schools; visiting professor of postgraduate paedodontics, University of Oregon Dental School and Baylor University College of Dentistry, Dallas, Texas; contributing author of *Handbook of Dental Practice* (Lippincott) and *Restorative Dentistry* (McGraw-Hill).

DUDLEY H. GLICK, Los Angeles
Associate professor, Department of Endodontics and Department of Postgraduate Education, School of Dentistry, University of Southern California, Los Angeles.

ANDREW J. HAAS, Cuyahoga Falls, Ohio
Visiting lecturer in orthodontics at the University of Pittsburgh and Temple University, Philadelphia.

HARRY M. WORTH, Vancouver
Former radiologist and lecturer in radiology at Guy's Hospital, University of London; former special lecturer in radiology at the Faculty of Dentistry, University of Toronto; author of *Principles and Practice of Radiologic Interpretation* (Year Book Medical Publishers).

REX INGRAHAM, Los Angeles, Californie
Professeur et président du département de dentisterie opératoire et directeur de la section des facteurs humains de la division de la recherche dentaire, Faculté dentaire, Université Southern California, Los Angeles; résident à l'hôpital presbytérien d'Olmstead; consultant à l'hôpital des vétérans de Long Beach; a contribué à la rédaction de l'*Atlas on Gold Foil and Rubber Dam Procedures* (Unitro-College Press) et de l'*Atlas of Cast Gold Procedures* (Unitro-College Press).

SILAS J. KLOEHN, Appleton, Wisconsin
Diplômé de la Faculté dentaire de l'Université Marquette à Milwaukee; diplômé du département gradué d'orthodontie de l'Université d'Illinois; directeur du *Angle Orthodontist*.

CHARLES A. SWEET, Walnut Creek, Californie

Professeur clinique de pédodontie de la Faculté dentaire de l'University of the Pacific, San Francisco; ancien inspecteur de l'enseignement sanitaire dentaire des écoles publiques d'Oakland; professeur invité du département de pédodontie graduée à la Faculté dentaire de l'Université d'Oregon et à la Faculté dentaire du Baylor College à Dallas, Texas; a contribué au *Handbook of Dental Practice* (Lippincott) et *Restorative Dentistry* (McGraw-Hill).

DUDLEY H. GLICK, Los Angeles
Professeur associé, département d'endodontie et d'enseignement post-gradué, Faculté dentaire, Université Southern California, Los Angeles.

ANDREW J. HAAS, Cuyahoga Falls, Ohio
Chargé de cours, invité au département d'orthodontie de l'Université de Pittsburgh et de l'Université Temple, Philadelphie.

HARRY M. WORTH, Vancouver
Ancien radiologiste et chargé de cours en radiologie à l'hôpital Guy, Université de Londres; ancien chargé de cours en radiologie à la Faculté dentaire de l'Université de Toronto; auteur de *Principles and Practice of Radiologic Interpretation* (Year Book Medical Publishers).

Dental Hygienists • Hygiénistes dentaires

Mrs. Claude W. (Jo) Gardner, Vancouver, president of the Canadian Dental Hygienists Association, invites dental hygienists from all parts of Canada to the fifth annual CDHA convention in Vancouver, June 26-29. A busy round of scientific, business and social activities is planned at the Vancouver Hilton Hotel. Further information from Mrs. Terry Kline, 1136 West 40th Avenue, Vancouver 13, BC.

Wednesday, June 26

- 9:00 Board of Directors meeting
- 7:00 Registration and evening reception

Thursday, June 27

- 8:00 Registration
- 9:00 G. D. Stibbs, Seattle: The unity of dentistry
- 10:00 Table clinics
- 10:30 Panel discussion: Dental hygiene—the profession and ethics
- 12:30 Canadian Dental Hygienists Association luncheon
- 2:30 Saul Schluger, Seattle: Periodontics
- 5:30 Wine and cheese tasting party

Friday, June 28

- 10:00 C. R. Castaldi, Winnipeg: The oral health of children in the 18 month to four year age group
- 12:30 Luncheon, uniform fashion show
- 2:00 Canadian Dental Hygienists Association annual meeting and installation of officers
- 7:00 Dragon parade, fireworks, entertainment, Chinese dinner at Lotus Gardens

Saturday, June 29

- 10:00 Mrs. Roger Hulbush, Burlington, Washington
- 12:30 Informal luncheon at the Panorama Roof

Madame Claude W. (Jo) Gardner, Vancouver, présidente de l'Association canadienne des hygiénistes dentaires, invite les hygiénistes dentaires de toutes les parties du Canada à se rendre au cinquième congrès de l'ACHD qui se tiendra à Vancouver du 26 au 29 juin. L'hôtel Vancouver Hilton sera le siège d'activités scientifiques, professionnelles et sociales. Pour plus amples renseignements, veuillez vous adresser à Madame Terry Kline, 1136 West 40th Avenue, Vancouver 13, BC.

Mercredi, le 26 juin

- 9 h. Réunion du conseil d'administration
- 7 h. Inscription et réception

Jeudi, le 27 juin

- 8 h. Inscription
- 9 h. G. D. Stibbs, Seattle : la dentisterie est un tout
- 10 h. Démonstrations cliniques
- 10 h. 30 Panel: hygiène dentaire — la profession et la déontologie
- 12 h. 30 Déjeuner de l'Association canadienne des hygiénistes dentaires
- 2 h. 30 Saul Schluger, Seattle: périodontie
- 5 h. 30 Dégustation de vins et fromages

Vendredi, le 28 juin

- 10 h. C. R. Castaldi, Winnipeg: la santé buccale des enfants du groupe 18 mois-4 ans
- 12 h. 30 Déjeuner, présentation d'uniformes
- 2 h. Réunion annuelle de l'Association canadienne des hygiénistes dentaires et entrée en fonction des administrateurs
- 7 h. Cortège du dragon, feux d'artifices, spectacles, dîner chinois au Lotus Garden

Samedi, le 29 juin

- 10 h. Madame Roger Hulbush, Burlington, Washington
- 12 h. 30 Déjeuner libre au Panorama Roof

Dental Assistants • Assistantes dentaires

A busy round of scientific, business and social activities awaits dental assistants when they arrive in Vancouver for the three-day convention of the Canadian Dental Nurses and Assistants Association, June 26-29. All events in the following preliminary program are at the Hotel Georgia unless otherwise stated. Further information from Miss Marion Burton, 606 Canada Building, Saskatoon, Sask.

Wednesday, June 26

7:00 Registration, hors d'œuvres, no host bar

Thursday, June 27

7:30 Registration
8:30 Call to order and invocation
10:30 British Columbia Dental Assistants Association annual meeting and elections
12:00 Lunch where you please
1:30 Canadian Dental Nurses and Assistants Association annual meeting and elections
3:30 Chinatown tour
5:00 Chinese dinner and fashion show

Friday, June 28

9:00 Lecture: Subject to be announced
11:00 Lecture: Professionalism
11:45 Social hour, no host bar
12:30 Luncheon in the Regal Ballroom
2:00 Clinical lectures
8:00 Entertainment night: Pot-pourri, sing-along, floor show, dancing

Saturday, June 29

11:00 Brunch and installation of officers

Les assistantes dentaires se lanceront dans des activités scientifiques, professionnelles et sociales lorsqu'elles arriveront à Vancouver, pour le congrès de trois jours de l'Association canadienne des infirmières et assistantes dentaires, du 26 au 29 juin. Tout le programme préliminaire suivant prendra place à l'hôtel Georgia à moins de précision contraire. Pour plus amples renseignements, veuillez vous adresser à Mademoiselle Marion Burton, 606 Canada Building, Saskatoon, Sask.

Mercredi, le 26 juin

7 h. Inscription, hors - d'œuvre, bar "sans hôte"

Jeudi, le 27 juin

7 h. 30 Inscription
8 h. 30 Ouverture de la séance et prière
10 h. 30 Réunion annuelle de l'Association des assistantes dentaires de la Colombie britannique et élections
12 h. Déjeuner où vous voulez
1 h. 30 Réunion annuelle de l'Association canadienne des infirmières et assistantes dentaires et élections
3 h. Soirée, pot-pourri, chansons, spec-
5 h. Dîner chinois et présentation de mode

Vendredi, le 28 juin

9 h. Conférence: le sujet sera annoncé ultérieurement
11 h. Conférence: le professionnalisme
11 h. 45 Heure de détente sociale, bar "sans hôte"
12 h. 30 Déjeuner dans le "Regal Ballroom"
2 h. Exposés cliniques
3 h. Soirée, pot-pourri, chansons, spectacle, danse

Samedi, le 29 juin

11 h. Déjeuner et entrée en fonction des administrateurs

VANCOUVER

National Convention
Canadian Dental Association
British Columbia Dental Association
June 27-29, 1968

Congrès national
Association dentaire canadienne
British Columbia Dental Association
du 27 au 29 juin, 1968

Registration • Inscription

Name/nom _____

Address/adresse _____

City/ville _____ Province _____

Wife's name/nom de l'épouse _____

Please check appropriate squares:

Convention fee \$25: includes three luncheons plus Wednesday registration party.

☐

Ladies' convention fee \$15: includes registration party, breakfast at Bayshore Inn, and Champagne Brunch with Fashion Preview at Queen Elizabeth Theatre.

☐

HMCS Discovery 'Paul Bunyan Night.' Perfect harbour setting, Indians, loggers, outdoor barbecue dinner. Thursday evening. \$7 per person.

☐

Chinatown Night. Lanterns, dragons, fireworks, oriental cuisine. Friday evening. \$7 per person.

☐

President's Fiesta Dinner and Dance. Vancouver Hilton Hotel. Famous entertainment. Saturday evening. \$25 per couple.

☐

Cheque enclosed for \$ _____

Mail completed form and cheque to: CDA-BCDA Convention, 325-925 West Georgia Street, Vancouver 1, BC.

SVP pointer les cases appropriées:

Droits d'inscription \$25: couvrent trois déjeuners, plus la réunion sociale du mercredi.

Droits d'inscription des épouses \$15: couvrent la réunion d'inscription, le petit déjeuner au Bayshore Inn et le déjeuner au champagne avec défilé de mode au théâtre Queen Elizabeth.

"Soirée Paul Bunyan" à bord du HMCS Discovery. Parfait décor de port, bûcherons, Indiens, barbecue en plein air-dîner. Jeudi soir. \$7 par personne.

Soirée dans la ville chinoise. Lanternes, dragons, feux d'artifice, cuisine orientale. Vendredi soir. \$7 par personne.

Dîner et danse Fiesta du Président, à l'hôtel Vancouver Hilton. Spectacle donné par des célébrités. Samedi soir. \$25 par couple.

Chèque de \$ _____ ci-joint

Veuillez remplir la formule et la poster avec votre chèque à: CDA-BCDA Convention, 325-925 West Georgia Street, Vancouver 1, BC.

Accommodation • Logement

Please reserve the following accommodation (order of preference indicated by 1-2-3 in squares):

Veillez me réserver comme chambre: (ordre de préférence indiqué par 1, 2, 3 dans les cases).

	Single/lit simple	Double/lit double	Twin/lits jumeaux	Suites
1. Bayshore Inn	☐ \$16	☐ \$20		☐ \$39
	☐ \$19	☐ \$24		☐ \$50
	☐ \$21	☐ \$26		☐ \$54
				☐ \$84
2. Blue Horizon	☐ \$10-12	☐ \$13-15	☐ \$16	
3. Devonshire	☐ \$9.75	☐ \$13	☐ \$14	
4. Doric Howe		☐ \$15	☐ \$17	
5. Georgia	☐ \$16	☐ \$20	☐ \$20	
6. Georgian Towers	☐ \$9.50	☐ \$12.50	☐ \$15	
7. Grosvenor	☐ \$10	☐ \$14	☐ \$14	
8. Vancouver Hilton	☐ \$16	☐ \$20	☐ \$21	☐ \$57
	☐ \$18	☐ \$22	☐ \$23	☐ \$74
	☐ \$20	☐ \$24		

Arrival/arrivée: Date _____

Departure/départ: Date _____



- Hotel numbers correspond to numbered locations on map.
- Check appropriate square for choice of hotel and accommodation desired.
- Reserve early! Hotels will release rooms not reserved by May 30.
- Rooms will not be held after 6.00 p.m. unless a later arrival time is given.
- Registration fee must accompany hotel reservation.
- Mail completed form to: CDA-BCDA Convention, 325-925 West Georgia Street, Vancouver 1, BC.

- Les numéros des hôtels correspondent aux emplacements numérotés, indiqués sur la carte.
- Pointez la case correspondant à l'hôtel et à la chambre de votre choix.
- Réservez dès que possible! Les hôtels ne garderont pas de chambres après le 30 mai.
- Les réservations seront garanties jusqu'à 6 h. du soir seulement, à moins que vous n'indiquiez une heure d'arrivée.
- Les droits d'inscription doivent accompagner les réservations d'hôtel.
- Envoyez la formule dûment remplie à: CDA-BCDA Convention, 325-925 West Georgia Street, Vancouver 1, BC.

Congrès national

Cliniques et conférences

Les délégués au congrès national de l'ADC à Vancouver, auront le choix entre plus de 70 conférences, projections, tables cliniques et autres activités.

Le Dr F. L. Jacobson de Seattle (Washington) et les membres de son groupe d'étude présenteront le résultat de leurs efforts dans le perfectionnement des restaurations en amalgame.

Les délégués de l'Assemblée générale pourront aussi assister aux conférences suivantes, que présenteront les sections de l'ADC:

Séminaire sur le traitement périodontique, par Saul Schluger, Seattle;

Orthodontie et fissures palatines, par A. J. Haas, Cuyahoga Falls (Ohio);

Soins dentaires aux adolescents, par C. R. Castaldi, Winnipeg; et

Les extractions systématiques en série, par W. R. Mayne, Salem (Massachusetts).

Canada

Nouvelle reliure pour le livre de témoignages vivants du FCED

Resplendissant dans sa nouvelle reliure de cuir, le livre de témoignages du Fonds canadien pour l'enseignement dentaire a été exposé pour la première fois, à la réunion de décembre du comité d'information publique de la FCED.

La croix symbolique qui figurait sur l'ancienne reliure a été remplacée par l'insigne du Fonds, en français et en anglais, marqueté or. Le livre ouvert mesure plus de deux pieds de large. La page de garde, enluminée, est suivie par la liste des personnes honorées pour leur contribution au FCED. Le livre est exposé de façon permanente à la bibliothèque de l'ADC.

Le président de la FCED, le Dr J. D. McLean l'a qualifié de "très beau livre, convenant parfaitement à sa fonction". Le Dr McLean a déclaré que les contributions au Fonds de témoignages vivants du FCED, honorent les amis et parents décédés et assurent la qualité constante de la dentisterie canadienne.

Les contributions au Fonds de témoignages vivants doivent être envoyées directement au Directeur exécutif, FCED, 234 St. George Street, Toronto 5, Ontario. Les contributions doivent mentionner le nom de la personne à honorer (qui recevra la carte) et le nom du donneur. Il sera accusé réception promptement de toutes les contributions qui sont déductibles au titre de l'impôt sur le revenu.

Semaine nationale de la santé publique

La 24ème Semaine nationale canadienne de la santé publique aura lieu du 10 au 16 mars. Le mercredi, 13 mars, a été choisi comme Journée de l'hygiène dentaire.

La Société canadienne de l'hygiène publique qui patronne la semaine de la

Examens du Collège royal des chirurgiens-dentistes du Canada

Ière Partie. Sciences de base. — Cet examen, prévu pour le 16 au 21 septembre 1968, aura probablement lieu dans plusieurs villes du Canada. Les demandes doivent parvenir au secrétaire avant le 31 mars 1968, accompagnées chacune d'un chèque de \$100. Le montant total des droits sera remboursé si la demande n'est pas acceptée par la Direction du Collège. Le montant total, moins \$25 sera remboursé dans le cas où une demande qui avait été acceptée serait retirée avant le 31 juillet 1968.

Ière Partie. Examen de reprise. — Cet examen aura lieu du 16 au 21 septembre 1968. Les candidats qui n'ont pas réussi complètement en septembre 1967, doivent, s'ils veulent terminer la Ière partie de l'examen, passer un examen de reprise en septembre 1968. Ils devront payer \$50 pour le nouvel examen. Les candidats devront communiquer au secrétaire leur décision de se présenter à l'examen de reprise et lui faire part des matières en cause avant le 31 mars 1968.

IIème Partie. Examen oral. — Cet examen, destiné aux candidats qui ont passé avec succès la Ière partie de l'examen, aura lieu du 28 au 30 novembre 1968. Les inscriptions pour cet examen doivent aussi être reçues par le secrétaire avant le 31 mars 1968. Les conditions d'admission à cet examen sont: (1) avoir passé avec succès la Ière partie de l'examen, (2) présenter les dossiers et certificats requis, etc., (3) qu'une période de cinq ans se soit écoulée depuis le début de sa formation post-universitaire. Les candidats qui ont droit de se présenter à cette

première session de la IIème partie de l'examen, ont déjà payé les droits d'examen en totalité. Cependant, à l'avenir, le coût de l'inscription pour la Ière partie sera de \$100 et \$100 supplémentaires seront perçus pour la IIème partie.

Un candidat, qui réussit la Ière partie de l'examen en septembre et qui a le minimum requis de cinq ans depuis le début de sa formation post-universitaire, peut se présenter pour la IIème partie de l'examen en novembre de la même année, à condition d'avoir informé le secrétaire de sa décision, avant le 31 mars 1968. Un chèque de \$200 doit accompagner sa demande. Le montant total lui sera remboursé si sa demande n'est pas acceptée. Le montant total, moins \$25, lui sera remboursé si sa demande est acceptée, mais s'il se désiste avant le 31 juillet 1968.

Les candidats qui échouent à la Ière partie de l'examen en septembre, n'ont pas le droit de se présenter à la IIème partie en novembre. Le montant de \$100 pour la IIème partie leur est remboursé.

Un candidat qui réussit à la Ière partie de l'examen en septembre et renonce à se présenter à la IIème partie, en novembre, perd le montant payé pour la IIème partie, à moins que la Direction n'approuve la validité de son désistement. Dans ce cas, sur les \$100 payés, \$75 lui seront remboursés.

Pour obtenir des formulaires d'inscription et des renseignements supplémentaires, écrivez au Dr J. E. Speck, Registrar-Secretary-Treasurer, Royal College of Dentists of Canada, Suite 614, 170 St. George Street, Toronto 5, Ont.

santé, en coopération avec les Départements de la santé publique et de l'éducation, a choisi pour thème, cette année:

“Votre santé—Votre responsabilité”.

Durant la semaine de la santé publique on se servira de la radio, de la télévision,

des journaux et des revues pour tenter d'enseigner au public comment veiller sur sa santé et la conserver. On fera aussi des conférences aux sociétés philanthropiques.

Chronique internationale

Membres de l'ADC éligibles comme membres de la FDI

Les membres de L'ADC sont éligibles pour devenir membres actifs de la Fédération dentaire internationale; une organisation d'environ 62 associations dentaires nationales, dans 58 pays.

La cotisation annuelle des membres actifs canadiens pour l'année 1968 est de \$16. Le fait de devenir membre comprend les avantages suivants: souscription aux bulletins de la FDI (trimestriels), la possibilité de s'inscrire pour l'assemblée annuelle de la FDI et pour les réunions dentaires mondiales de la FDI qui ont lieu tous les cinq ans.

La 56ème assemblée annuelle de la Fédération aura lieu à Varna (Bulgarie) du 17 au 24 septembre 1968. Il est indispensable que tous les membres de l'ADC se rendant à cette assemblée, soient membres actifs de la FDI. Les personnes intéressées à devenir membres de la FDI, ou désirant des renseignements, peuvent écrire au Dr W. G. McIntosh, FDI national treasurer, 234 St. George Street, Toronto 5, Ontario.

Union chez les périodontistes

L'American Academy of Periodontology et l'American Society of Periodontists viennent de décider de fusionner les deux organismes. Le nouveau groupe sera connu sous le nom d'American Society of Periodontology et comprendra 1,600 membres. L'Académie publiera deux journaux: le *Journal of Periodontology* et *Periodontics* (anciennement le *Journal of the American Society of Periodontists*). Chacune de ces publications paraîtra tous les deux mois. L'Académie organisera deux réunions scientifiques en 1968: à New York, du 16 au 19 juin et Hollywood

(Floride), du 23 au 26 octobre. Le président du nouveau groupe est le Dr C. H. M. Williams de Toronto.

Le docteur Blackerby est nommé président de la Fondation Kellogg

Un dentiste, P. E. Blackerby, a été nommé président et administrateur en chef de la W. K. Kellogg Foundation, Battle Creek, Michigan. Le docteur Blackerby a été assistant du directeur général de la Fondation, de 1956 à 1965, et président adjoint des programmes, de 1965 à sa présente nomination.

La Fondation Kellogg qui régit les fonds, supporte financièrement les activités mondiales d'intérêt public, telles que: éducation, agriculture et santé; elle a participé à de nombreux projets dentaires canadiens, depuis 1942. A l'Université de Toronto, la Fondation a récemment donné un cours, pour enseigner aux étudiants en dentisterie, la manière d'utiliser l'aide des assistantes dentaires.

Symposium sur la dentisterie hospitalière au Valhalla, NY

"Le dentiste à l'hôpital" est le thème d'un symposium de trois jours qui se tiendra au Grasslands Hospital, Valhalla, New York, du 3 au 5 mai. Commanditée par le Conseil des services hospitaliers de la New York State Dental Society, la réunion présentera une équipe de médecins éminents, de dentistes et de personnel auxiliaire qui discutera des procédures dentaires à l'hôpital, de l'admission au départ du patient.

Le Dr George Graham, président de l'American Hospital Association traitera "du point de vue de l'American Hospital Association sur la dentisterie" et le Col. C. C. Alling, chef du service de chirurgie buccale, au Walter Reed Army Medical Centre de Washington, parlera "du dentiste d'hôpital." Le Dr J. E. Fauber, secrétaire du Conseil des services hospitaliers de l'American Dental Association, a choisi comme sujet de son exposé, "la conception future de l'utilisation de l'hôpital par le dentiste."

Les sujets des sessions spéciales com-

prendront: "l'hôpital moderne et le dentiste," "qui va à l'hôpital pour des soins dentaires," "procédure d'hôpital" et "anesthésie pour le patient dentaire". Il sera donné également des démonstrations par bandes magnétoscopiques.

Pour obtenir de plus amples renseignements, veuillez écrire au Dr M. M. Maslansky, Grasslands Hospital, Valhalla, NY 10595, USA ou au Dr George Minervini, 9th District Dental Society, 18 Maple Ave., White Plains, NY 10601, USA.

A Chicago en juin, conférence sur le traitement des patients atteints de cancer buccal

Une conférence interprofessionnelle des professions dentaire et médicale, pour la coordination et la divulgation des progrès les plus récents relativement aux soins à donner aux patients atteints de cancer buccal, aura lieu en juin, au siège social de l'American Dental Association, à Chicago. Le coût de la conférence sera partagé entre le US Department of Health, Education and Welfare, l'American Cancer Society et l'ADA.

Cinq groupes d'étude passeront en revue les problèmes actuels et les connaissances acquises sur le cancer buccal, considéreront les nouvelles conceptions et techniques et essaieront de réconcilier les recommandations divergentes, quant aux conceptions dentaires, aux prothèses maxillofaciales, aux stents et aux gouttières de fixation, au traitement osseux, au traitement des tissus délicats et au maintien de la santé en général et de la santé dentaire en particulier.

Conférence sur la chirurgie buccale à New York

Une conférence internationale sur la chirurgie buccale aura lieu à New York du 7 au 12 octobre. Le clou de la conférence sera une session de un jour et demi portant sur les traumatismes et les différentes phases du traitement d'un malade présentant des blessures multiples. On remarque aussi des conférences sur le traitement chirurgical de l'améloblastome, le traitement des béances de l'occlusion et la chirurgie pré-prothétique. Il y aura

aussi neuf sessions scientifiques auxquelles prendront part les conférenciers de 25 pays.

On peut obtenir des renseignements supplémentaires au sujet de l'inscription et du logement, en écrivant à l'American Society of Oral Surgeons, 211 E. Chicago Ave., Chicago, Illinois 60611, USA.

L'American Society of Oral Surgeons organisera aussi une série de conférences qui se tiendront à Chicago les 1 et 2 juillet et traiteront de l'articulation temporo-mandibulaire. Parmi les conférenciers il y aura des chirurgiens buccaux, des neurologues, des psychologues, des anatomistes et des pathologistes. Tous les professionnels de la santé sont également invités à cette conférence. Pour tout renseignement s'adresser à l'ASOS.

Economie

La Nouvelle-Ecosse offre une assurance dentaire

Le Maritime Medical Care, dont le siège social est à Halifax, aurait l'intention d'offrir une assurance combinée pour les soins dentaires et les médicaments. Cette assurance entrerait en force avant le 1er juillet, qui est la date d'entrée en vigueur du Medicare d'Ottawa.

D'après le *Halifax Mail Star* du 29 décembre, l'assurance médicaments serait mise en route à la fin du mois d'avril et l'assurance dentaire, vers la fin de mai ou de juin. Le coût de l'assurance médicaments sera probablement de \$1 par mois, pour une personne seule (\$10 déductibles des impôts) et de \$3, pour une famille (\$25 déductibles des impôts). Nous n'avons encore aucun renseignement sur le coût de l'assurance dentaire mais il faut s'attendre à ce qu'il soit deux à trois fois plus élevé que celui de l'assurance médicaments.

Le Congrès américain vote la loi sur la sécurité sociale; approbation du programme dentaire pour les enfants

Le 15 décembre, le Congrès américain a approuvé le projet de loi sur les amende-

ments à la sécurité sociale de 1967. La loi autorise des subsides pour des projets spéciaux, en faveur des enfants "qui ne recevraient pas de soins dentaires parce qu'ils appartiennent à des familles économiquement faibles ou pour d'autres raisons dont ils ne sont pas responsables". Ces dispositions sont conformes aux recommandations du programme dentaire pour les enfants de l'American Dental Association.

Des subsides fédéraux pour des projets dentaires seront accordés aux agences de santé des municipalités ou des états, et aux institutions et organisations philanthropiques. La loi mettra sur pied un programme de quatre ans qui entrera en vigueur le 1er juillet 1968. Le Gouvernement fédéral participera aux coûts de ces projets à concurrence de 75 pour cent. On s'attend à ce que la première année, environ 100,000 enfants nécessiteux bénéficieront de ce programme d'un coût d'à peu près 5 millions.

Premier programme prépayé de service dentaire inter-état

Le US National Association of Dental Service Plans a annoncé la négociation du premier programme prépayé de service dentaire inter-état. L'acheteur collectif est la Northwest IAM (International Association of Machinists) Benefit Trust. Le plan, qui entra en vigueur le 30 novembre, couvre les membres de l'IAM et leur famille dans huit états: l'Alaska, le Colorado, l'Idaho, le Montana, l'Oregon, l'Utah, l'état de Washington et le Wyoming.

Le programme, qui est signé pour une période initiale de trois ans, appliquera le concept de la table d'allocations. Lorsqu'un membre utilise le programme pour la première fois, la formule applicable est un co-paiement 70/30. Ensuite, et dans la mesure où il reçoit des soins dentaires chaque année, la contribution financière du patient descend à 10 pour cent par an. On encourage de cette façon, les patients à se faire traiter régulièrement. Cet encouragement s'applique à tous les services fondamentaux, à l'exception des prothèses qui sont toujours fournies sur la base 50/50.

Un rapport des E.U. prédit une crise sanitaire

Un rapport publié récemment par la US National Advisory Commission on Health Manpower déclare que le système national de santé va entrer dans une période critique, qui ne fera qu'empirer, à moins qu'on effectue des changements importants. La Commission insiste, dans tout son rapport sur le fait que le gouvernement ne peut pas, à lui seul, résoudre les problèmes existants.

Ce rapport mentionne entre autres problèmes, l'attention impersonnelle donnée au patient; les délais prolongés pour obtenir des rendez-vous chez les médecins; le manque de lits d'hôpitaux et de services; la distribution inégale des soins, l'augmentation substantielle des coûts "qui empêchaient déjà certaines personnes de recevoir des soins et sont en voie de devenir une charge financière écrasante pour beaucoup d'autres".

Parmi les 58 changements majeurs recommandés par la Commission, citons: des cours de perfectionnement pour les médecins et les dentistes ou des examens périodiques pour le renouvellement de leur licence; des subsides d'encouragement aux facultés médicales et dentaires pour leur permettre de former des médecins et des dentistes en plus grand nombre; une aide financière directe aux étudiants en dentisterie et en médecine, en leur offrant des prêts qui couvriraient intégralement leurs frais d'inscription et leur entretien; l'établissement de fonds fédéraux pour la création de nouvelles catégories de professions sanitaires et la mise au point de procédures disciplinaires efficaces, par les sociétés professionnelles, les organisations d'assurance santé et le gouvernement, pour assurer le maintien d'un standard élevé de soins médicaux.

La Commission a fait remarquer que "l'écart entre la formation des professionnels et celle du personnel auxiliaire allait en s'accroissant. En médecine, un docteur qui a fait douze ans d'études après l'école secondaire doit compter sur l'aide d'une infirmière qui peut n'avoir que deux ans de formation professionnelle. Cet écart est moins sensible, mais existe néanmoins, en ce qui concerne les dentistes et les hygiénistes dentaires...".

Fluoration

Les hauts et les bas de la fluoration

Quatre autres municipalités de l'Alberta se sont prononcées récemment, par plébiscite, sur la fluoration. Hinton, Westlock et Grand Centre ont approuvé l'adoption de cette mesure; Lac La Biche l'a rejetée.

Les conseils municipaux de Petrolia, Ontario et Chateauguay, (Québec) ont voté en faveur de la fluoration. Petrolia fournit l'eau de Watford, Wyoming, certains districts de Sarnia, Enniskillen et Plympton. On estime que l'installation qui devra être faite à Chateauguay reviendra à environ \$6,000.

Les municipalités ontariennes de Woodstock, Kitchener et Fort William ont voté contre la fluoration.

La Cour de l'Illinois maintient la loi sur la fluoration

La Cour d'appel de l'Illinois a maintenu la décision d'un Tribunal de première instance qui avait rejeté une poursuite intentée contre la ville de Rockford. La procédure avait pour but d'empêcher la ville de commencer un programme de

fluoration. La Cour d'appel a décidé qu'il est impossible de contester la légalité du décret de fluoration, car il existe une loi de fluoration pour tout l'état de l'Illinois. La Cour a déclaré que de telles attaques soulevaient des controverses qui ne sont pas de la juridiction des tribunaux. L'Illinois est l'un des trois états américains qui ont des lois mandatoires de fluoration. Les deux autres états sont le Connecticut et le Minnesota.

Nombre de votes égal pour et contre la fluoration, à North Battleford

Le 1er novembre, le plébiscite tenu à North Battleford, Saskatchewan, a donné un total de 1,402 votes, pour et contre cette mesure. Lorsque le résultat a été annoncé, le Conseil municipal a demandé la présentation de mémoires, à une réunion spéciale du conseil. Après leur présentation, les membres du conseil ont voté, cinq contre un, en faveur de la fluoration de l'eau fournie à North Battleford.

Distinctions honorifiques

Lors du dernier Congrès dentaire mondial tenu à Paris, le Dr Claude Madore, président de l'Académie canadienne des sciences dentaires, remet un certificat honorifique "Fellow" au docteur **Jean Délibéros**, de Paris, France. Le Dr Délibéros était président d'honneur du XIVe Congrès dentaire mondial et président du comité scientifique de ce congrès. Il est également ancien président de la Fédération dentaire internationale. Les autres récipiendaires de ce titre sont: les docteurs **Ernest Charron**, doyen émérite, Université de Montréal, **Paul Geoffrion**, Docteur en Droit, Université de Montréal, **I. F. Miller**, New York University, **James McCutcheon**, doyen de la Faculté dentaire de l'Université McGill, **Jay H. Eschelman**, Temple University, Philadelphie, et **Herbert Shilder**, Boston University.



Le Dr Claude Madore (à droite) de Montréal, président de l'Académie canadienne des sciences dentaires, remet un certificat honorifique de "Fellow" au Dr Jean Délibéros de Paris, France.

National Convention

PH Dentists Set Two-Day Program

The Canadian Society of Public Health Dentists has scheduled a breakfast meeting at 8.30 a.m. on Thursday, June 27 in the Devonshire Hotel, Vancouver. There will be two further sessions on Friday, June 28 in the Public Library auditorium. The scientific meeting will commence at 11.00 a.m. and the business meeting is scheduled for 3.30 to 4.30 p.m. Further information may be obtained from S. J. Gallagher, 465 West Broadway, Vancouver 10, BC.

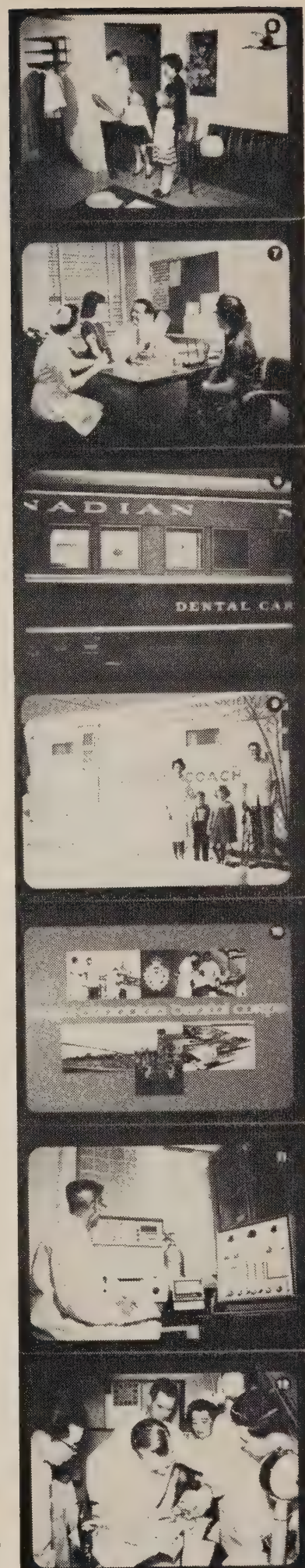
The Association

New Careers Film Strip Available

The Canadian Dental Association has issued a new coloured film strip on *Careers in Canadian Dentistry*. Prepared as an aid to careers counselling and vocational guidance, the film strip illustrates different phases of dental education and various situations in which the modern dentist practises his profession. An accompanying reference manual gives a description of each frame in the film strip.

The film strip and the reference manual are available at \$3.50 a set from the Canadian Dental Association, 234 St. George St., Toronto 5, Ont.

Right: frames 6-12 from the new CDA film strip "Careers in Canadian Dentistry."



Canada and the Provinces

Caulk and Dentsply Aid Dental Education

Dean J. D. McLean, chairman of the Board of Directors of the Canadian Fund for Dental Education, has announced the receipt of \$5,000 from Caulk-Canada and Dentsply Canada Limited to assist the Fund in establishing a headquarters office and staff. The money was transmitted February 8 by G. H. Tobey, president of Caulk-Canada. This completes a \$15,000 grant to the Fund from The Dentists' Supply Company of York, Pennsylvania. The American firm is a leading manufacturer of artificial tooth products and dental equipment and parent of the two Canadian companies.

The Canadian Fund for Dental Education was organized five years ago to help upgrade the qualifications of dental teach-

ers, aid dental research, and assist meritorious students with non-interest bearing loans.

National Health Week March 10-16

Canada's 24th annual National Health Week was observed March 10-16 and Wednesday, March 13 was designated as Dental Health Day.

The Health League of Canada, which sponsors Health Week in cooperation with departments of health and education and many other organizations across the country, chose as this year's theme "Your Health — Your Responsibility."

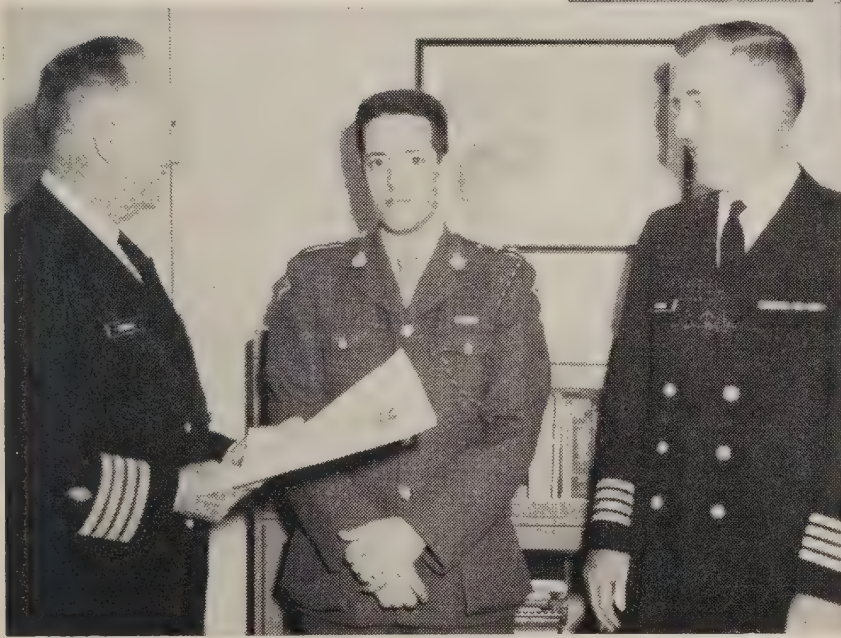
Continuing education to promote and conserve health by all possible means was stressed during Health Week by radio, television, newspaper and magazine coverage and by talks given to service clubs and other organizations.



Dean J. D. McLean (l.), chairman of the Canadian Fund for Dental Education, acknowledges two cheques totalling \$5,000 from G. H. Tobey, president of Caulk-Canada, while D. Murray McDonald, CFDE executive director, registers his approval. The money is the final instalment of a \$15,000 grant from The Dentists' Supply Company of York, Pennsylvania, to help establish a headquarters office and staff for CFDE.

Royal Canadian Dental Corps

Lt.-Col. W. C. Waid, whose promotion and appointment as militia dental adviser for the Ontario Region was announced in the February issue of the Journal, is a staff member of DVA Sunnybrook Hospital, Toronto.



Capt. G. R. Charron of the Royal Canadian Dental Corps, who recently attended a one week course in oral surgery at the Naval Dental School, Bethesda, Maryland, is shown receiving his completion certificate from Capt. K. L. Urban, commanding officer of the school. Looking on is Capt. H. B. Marble, Jr., head of the Oral Surgery Department and director of the oral surgery course.

US Navy News Photograph

International Items

CDA Members Eligible for FDI Membership

CDA members are eligible to become supporting members of the Fédération Dentaire Internationale, a federation of approximately 62 national dental associations in 58 countries.

Annual dues for Canadian supporting

members for 1968 are \$16. Benefits of membership include a subscription to the *International Dental Journal* (quarterly); subscription to the *FDI Newsletter* (quarterly); and the opportunity to register at the annual session of the FDI and the world dental congresses of the FDI held every five years.

The 56th annual session of the Federation will be held in Varna, Bulgaria, September 17-24, 1968. It is necessary that all CDA members attending this session

hold supporting membership in the FDI. Those desiring FDI membership or any other information should write to W. G. McIntosh, FDI national treasurer, 234 St. George St., Toronto 5, Ont.

Bulgarian Visas Unnecessary for FDI Delegates

Canadian dentists attending this year's FDI annual session at Varna, Bulgaria, September 17-24, will be able to enter and leave without a Bulgarian visa until the end of 1968. The exemption covers foreign tourists from any country who visit Bulgaria for more than 24 hours and less than two months. Similar privileges are extended to tourists who stay in Bulgaria less than 24 hours and whose visits are organized by the Bulgarian National Committee for Tourism. Generally excluded are foreigners travelling in transit, the employees of foreign diplomatic, commercial and other agencies, foreign salesmen, and foreign students at Bulgarian universities.

US Periodontists Merge Into One Group

The American Academy of Periodontology and the American Society of Periodontists recently voted to merge the two organizations. The new group, called the American Academy of Periodontology, has a membership of some 1,600. The academy will publish two journals — the *Journal of Periodontology* and *Periodontics* (formerly the *Journal of the American Society of Periodontists*). The publications will be circulated in alternate months. The academy will hold two scientific meetings during 1968, in New York City June 16-19 and in Hollywood, Florida, October 23-26. President of the merged organization is C. H. M. Williams of Toronto.

Oral Pathologists Plan April Meeting in Arizona

Canadian dentists have been invited to attend the annual meeting and seminar

of the American Academy of Oral Pathology in Scottsdale, Arizona, April 15-18, at the Safari Hotel. Leon Sokoloff of the US National Institutes of Health will present this year's seminar titled "The Arthritides, Connective Tissue and Collagen Diseases." Further information may be obtained from S. M. Standish, Indiana University, School of Dentistry, Indianapolis, Indiana 46202, USA.

American Academy of Periodontology Meeting in New York June 16-19

Periodontists and general practitioners interested in periodontology have been invited to attend the spring meeting of the American Academy of Periodontology June 16-19 at the New York Hilton Hotel, New York.

Scientific sessions will be held June 17-19, with registration on June 16. A special feature of the scientific program will be a graduate student seminar. In addition, the Orban prize competition for graduate students is scheduled on the program.

There is no registration fee for AAP members and students. The fee for non-members is \$50.

Radiology Congress in Chile in August

Canadian dental radiologists have been invited to attend the First International Congress on Dental and Maxillofacial Radiology to be held in Santiago, Chile, August 15-17. Further information may be obtained by writing to Comité Organizador y Ejecutivo del I Congreso Internacional de Radiología Dento-Maxillofacial de Chile, Calle Miraflores 590, Santiago, Chile.

Oral Surgery Conference in New York Oct. 7-12

An International Conference on Oral Surgery will be held October 7-12 in New York City. Highlight of the conference will be a one and one-half day session on trauma, featuring a multidisciplinary approach to the multiply injured patient. Other topics include pathology of the surgical management of the ameloblas-

toma, open bite deformity and pre-prosthetic surgery. There will also be nine international scientific sessions featuring speakers from over 25 countries.

Further information, including housing and registration, may be obtained by writing to the American Society of Oral Surgeons, 211 E. Chicago Ave., Chicago, Ill. 60611, USA.

The American Society of Oral Surgeons will also sponsor a continuing education conference on the temporomandibular joint July 1-2 in Chicago. National and international speakers will comprise the faculty which includes oral surgeons, a neurologist, psychologist, anatomist and pathologist. This program is also open to all health professionals and additional information may be obtained from the ASOS.



C. D. Rusen

Board of Directors are D. B. Proctor and A. J. Shinoff, both of Winnipeg, and Joseph Slogan, Selkirk. W. G. Campbell, Winnipeg, is secretary.

Dental Organizations

Manitoba Association Raises Licence Fee

The Manitoba Dental Association has voted to increase its licence fee from \$140 to \$150. The \$10 raise is coupled with an offer to increase the per capita grant to the Canadian Dental Association from \$40 to \$50. These decisions were approved at the MDA annual convention held in Winnipeg, January 20.

The Manitoba association is the fifth provincial dental organization to take such action. Increased grants to the CDA were offered earlier by the College of Dental Surgeons of British Columbia, the Alberta Dental Association, the College of Dental Surgeons of Saskatchewan and the Prince Edward Island Dental Association.

Dr. Rusen is President of Manitoba Association

Winnipeg dentist C. D. Rusen was installed as president of the Manitoba Dental Association on January 20 during that organization's 83rd annual convention. He succeeds G. W. Danzinger, also of Winnipeg. Fred Ollinik, Morden, was elected vice-president. Other members of the

Economics

Nova Scotians Offered Dental Insurance

Halifax-based Maritime Medical Care reportedly aims to offer comprehensive dental and drug insurance before Ottawa starts medicare on July 1.

According to the December 29 *Halifax Mail Star*, drug insurance may be introduced late in April and dental insurance would be operating by late May or June. The cost for drug insurance will probably be \$1 a month for a single person (\$10 deductible) and \$3 for a family (\$25 deductible). No costs have yet been announced for dental insurance but they are expected to be two to three times more expensive than the drug plan.

Regional Conventions

CSDC Ontario Chapter Meets May 11

The Ontario Chapter, Canadian Society of Dentistry for Children, has announced the following program details for its annual meeting at Toronto's Royal York Hotel, Saturday, May 11:

- B. K. Arora, Toronto: Drug therapy and oral surgery
- H. Sorenson, Lexington, Kentucky: Dentistry for the handicapped
- J. H. Sword, acting president, University of Toronto: Luncheon speaker
- I. A. Arshawsky, Toronto: Endodontics
- A. L. Posen, Toronto: Interceptive orthodontics

Further information may be obtained from F. Pulver, 1753 Bathurst St., Toronto 10, Ont.

Public Health

Perry J. Sandell Dies

Perry J. Sandell, an assistant secretary of the American Dental Association, died on January 4 at the age of 56.

An authority in dental health education, Mr. Sandell had served as president of the American School Health Association and was a member of the American Public Health Association. He joined the ADA staff in 1952 as director of the Bureau of Health Education and was appointed assistant secretary in February 1967.

Fluoridation

Illinois Court Upholds Fluoridation Law

The Illinois Appellate Court has upheld a county court ruling dismissing a suit against the city of Rockford. The suit was aimed at preventing the city from initiating a fluoridation program. The Appellate Court held that attacks on the legality of fluoridation ordinances will not be heard because there is a statewide fluoridation law in Illinois. The court said that such attacks raise moot questions which are not considered by the courts. Illinois is one of the three American states which have mandatory fluoridation laws. The other two are Connecticut and Minnesota.

Australia's Army to Have Fluoridated Water

Army personnel in Australia is to receive fluoridated water, according to a report in the December issue of the *Australian Dental Journal*. This action, together with the use of stannous fluoride dentifrices and the full use of dental hygienists, is expected to bring about a dramatic

reduction in the incidence of dental caries in the army.

Similar action was taken here in December 1965 when the Canadian Minister of National Defence directed that water for human consumption in Defence establishments not already served with naturally or artificially fluoridated water be fluoridated. Practically all bases in Canada will have fluoridated water supplies by this summer. Exceptions are where bases obtain their water from neighbouring cities such as Calgary and Victoria where plebiscites are required or have resulted unfavourably.

Research

Hot Food Shrinks Amalgam Fillings

Investigators at the US National Institute of Dental Research have found that moderate heat hastens phase changes in dental amalgam which produce a contraction of molecular lattice space that may account for some leakage around dental fillings.

The principal metal combinations in amalgam are silver-tin, silver-mercury, and tin-mercury phases. Through x-ray diffraction studies a new phase (beta-1) of the silver-mercury combination has been discovered. Its molecular lattice structure is compact and hexagonal, whereas that of the previously observed gamma-1 phase is cubic and not so close-packed.

Both beta-1 and gamma-1 phases occur at room temperature. The gamma-1 phase predominates when particles of silver and mercury are ground and pressed together at room temperature as in making a filling. The amount of the beta-1 phase greatly increases with dry polishing or application of surface heat to the amalgam. During storage at 60°C. for a week, most of the original gamma-1 phase rapidly changes to the beta-1 phase, beginning at the surface and spreading inward.

Phase change from gamma to beta reduces the size of the 'cells,' or clusters of molecules that form the lattice structure

of the compound, increasing porosity by 5 per cent. This spatial shift, which occurs experimentally at temperatures of hot foods in the mouth, may in time cause some of the deterioration of amalgam that results eventually in leakage around tooth fillings.

Awards and Honours

Honorary fellowships in the Canadian Academy of Dental Sciences have been awarded to **Jean Délibéros** of Paris, France; **Ernest Charron**, dean emeritus, Université de Montréal Faculty of Dental Surgery; **Paul Geoffrion**, former dental dean and head of the Orthodontic Department, Université de Montréal; and **James McCutcheon**, dean, Faculty of Dentistry, McGill University, Montreal. Dr. Délibéros, a former president of the Fédération Dentaire Internationale, served as honorary president of the FDI Paris World Dental Congress last year.

J. S. Geller, Toronto, was recently awarded the Lord Chaim Prize by the First District Dental Society of New York for his essay on "A Television Radiographic Evaluation of the Association between Dentine Sclerosis and Pulpal Floor Width." The prize has a value of \$500 and is awarded for a meritorious essay on any original subject pertaining to any area of dentistry. Dr. Geller is the first Canadian and the youngest person to win this award which has only been presented eight times since 1944.

Sholom Pearlman, Glencoe, Ill., has received the 1967 Research Medal from Columbia University Dental Alumni Association in New York. A native Canadian from Ottawa, Dr. Pearlman was formerly secretary of the Council on Dental Research of the American Dental Association. He was recently appointed a consultant

to the new University of Colorado School of Dentistry. Dr. Pearlman earned his DDS degree at the University of Toronto and a master of science degree at Western Reserve University, Cleveland.

Deaths

Amos, Joseph Elmer. 83. Brantford, Ont. Royal College of Dental Surgeons of Ontario, 1909. 7-12-67. Survived by Jean (wife).

Christie, Robert Spencer. 60. Winnipeg. University of Minnesota, 1932. 6-1-68. Survived by Frances (wife); Norman and David (sons); Mrs. Kathryn Tray (daughter); and Dr. John, Glenn and Norman (brothers).

Lacasse, J. Aristide. 73. Ste-Agathe-des-Monts, Qué. Université de Montréal, 1918. 30-12-67. Servé par Eméline (épouse) et Mme Arthur Murchison et Mme René Dagenais (filles).

McGahey, Celestin Thomas. 74. Iroquois, Ont. Royal College of Dental Surgeons of Ontario, 1924. 20-12-67. Survived by Clarie (wife); Catherine (daughter); and E. P. and Anthony (brothers).

Noonan, Ralph Leo. 69. Summerside, PEI. Royal College of Dental Surgeons of Ontario, 1923. 3-12-67. Survived by Ruth (wife) and Mrs. W. A. Tallmire, Mrs. E. P. Foley, Mrs. Lorne MacLellan and Miss Pauline (sisters).

Shortreed, Roy Dawson. 73. Vancouver. Royal College of Dental Surgeons of Ontario, 1919. 20-12-67. Survived by Alma (wife); Jack Henderson (stepson); and Mrs. C. Graham (stepdaughter).

Turcotte, Joseph-Alfred. 83. Mont-Joli, Qué. Université de Montréal, 1922. 20-1-68.

Wark, Albert Edward. 91. Selma Park, BC. Royal College of Dental Surgeons of Ontario, 1905. 1-1-68. Survived by Dr. John and Bruce (sons).

Decayed, Missing and Filled Teeth in Adults — United States, 1960-1962

Washington, US Department of Health, Education and Welfare. National Center for Health Statistics. Vital and Health Statistics. PHS Publication No. 1000, Series 11, No. 23. 1967. 47 p. \$0.35

This recent publication from the National Center for Health Statistics presents national estimates of the number of decayed, missing, and filled teeth in the adult population of the United States. The estimates are based on findings from a standardized dental examination administered by the Health Examination Survey from October 1959 through December 1962 to a probability sample of the country's civilian, non-institutionalized population aged 18-79 years. Approximately 6,700 persons representing a total population of some 111 million adults were examined. The estimates in this report describe the dental condition of only those men and women—approximately 91 million in all—who still had natural teeth.

The widespread prevalence of dental disease and its effect on the dental health of the adult population are strongly reflected in the resulting estimates. Adults of all ages and races averaged 17.9 DMF teeth per person: 1.4 decayed, 9.4 missing, and 7.0 filled. It was the exceptional person—about 1 in 160—who possessed all of his natural teeth, none of which was either decayed or filled. Counts of DMF teeth, based in this survey on 32 teeth, represent the total number of permanent teeth any adult at any age has that are decayed, filled, and either missing or indicated for extraction.

Trends by both age and sex were remarkably consistent. In general, DMF teeth accumulated rapidly with advancing age, reflecting the steadily increasing loss of teeth which accompanies ageing. At all age levels, women had higher counts of DMF teeth than did men, which suggests that women are slightly more prone to dental disease than men. White adults had substantially more DMF teeth than did Negro men and women: 18.7 and 12.2, respectively. The

DMF counts were consistently higher for women than for men of the same race.

The number of DMF teeth was significantly related to family income and education. As family income and education increased, the number of DMF teeth increased for both men and women. Variations in income and education fail to explain the wide difference in DMF teeth that prevailed by race.

Because younger adults lose relatively few teeth from any cause other than decay, DMF teeth accurately measure the number of their teeth that have been attacked by decay at least once. Thus, differences between mean DMF counts of groups of young people whose age is the same reflect relative variations in the rate at which their teeth have been attacked by decay.

Trends in DMF teeth in young adults 18-34 years of age were examined separately and compared with those for the adult population as a whole. The demographic variables which were significantly associated with DMF teeth in the entire adult population prevailed to a striking degree in the young adult group. Thus, it appears that women are slightly more susceptible to dental decay than men, persons with higher income and education more prone than those with lower income and less schooling, and white adults substantially more susceptible than Negro adults.

F. E. Linder

The Dentist and His Assistant

Shailer Peterson, ed. Ed. 2. St. Louis, The C. V. Mosby Company, 1967. 445 p. Illus. \$10.00

This is an updated expanded edition of Shailer Peterson's earlier text and reference book for the dentist and his assistant. The 11 chapters of the 1961 edition have been revised, and seven chapters and eight contributors have been added.

An informative up-to-date history of dentistry opens the book. The sequence of the

subsequent chapters has no apparent pattern. Dr. Peterson uses half of his preface to discuss chapter sequence. After admitting the possibility of many variations, he suggests an order which differs from that in which they appear: 1, 13, 14, 18, 9, 3, 2, 12, 5, 6, 8, 7, 10, 11, 4, 16, 17, 15. One wonders whether he ever reached a firm conclusion!

Among texts prepared to meet the need of certification courses for dental assistants this one stands out in its emphasis on efficient team dentistry performed with tray set-ups in the modern dental office. Nearly 100 pages are devoted to chairside dental operations, each clearly illustrated with a complete tray set-up and accompanied by an explanation of the treatment, an outline of procedures and a guide for the work of the dental assistant. Detailed examples of instrument passing are offered by a well qualified assistant so that "four hands may function as five."

This generously and well illustrated book shows recent dental equipment, instruments, supplies and materials—information which should be very useful in their identification, use and care. The scope of the book adheres to the level of the high school graduate throughout, omitting the basic sciences completely.

First aid in the emergency situation is omitted. Though the assistant is otherwise poised and well trained, her inadequate response or tenseness in an emergency situation may stem from insufficient preparation in this field.

The dentist will find this book valuable for organizing his procedures and selecting and training his assistant. For the dental assistant there is an explanation of what the dentist is doing and what she will do as his secretary, educator, public relations representative, housekeeper, laboratory aide and certified dental assistant. The student of dentistry or dental hygiene will find the book helpful reference to dental procedures, operation of the dental office, and the role of the assistant. It is, without question, a useful text for the instructor of dental assisting.

Dixie Scoles

Medical and Dental Hypnosis and Its Clinical Applications

John Hartland, London, Baillière, Tindall and Cassell, 1966. (Available from The Macmillan Company of Canada Limited, Toronto) 346 p. \$9.00

This is a well written, well documented, interesting and useful book on hypnosis for the general practitioner of medicine or dentistry. The author has drawn on his 25 years of experience with hypnosis. He points out what the practitioner should and

should not do and what he can expect from the use of hypnosis. He thoroughly describes many useful techniques.

The author, however, begins to describe hypnotic techniques after only 26 pages of introduction. This may lead some readers to believe that techniques are the most important part of hypnosis. Actually, they are so easy to learn that the practitioner could use them without the necessary psychological background. This minor criticism is only applicable, however, if the reader does not first read the whole 335 pages prior to using hypnosis.

There is a concise, informative 12 page chapter on dental hypnosis by Stanley Tinkler. Although he must only use hypnosis for dental reasons, the dentist should read the whole book in order to gain more insight into hypnosis and its use.

Strong exception must be taken to the suggestion of producing muscular rigidity of jaw and neck muscles in order to keep the jaws apart during dental procedures. This practice has a detrimental effect on the temporomandibular joint. The growing tendency toward quadrant treatment and resultant long appointments could exacerbate this effect and lead to serious trouble for some patients.

Similar objections must be raised against the author's advice respecting the control of thumbsucking. The use of hypnosis to substitute fingersucking for thumbsucking is unacceptable. If hypnosis is employed, it is advisable to use it only in conjunction with permissive techniques.

This is otherwise an excellent book for physicians. It can also be used to supplement books on hypnosis in dentistry.

D. S. Moore

The Mechanisms of Tooth Support

A symposium, Oxford, July 6-8, 1965. Bristol, John Wright & Sons Limited, 1967. (Available from The Macmillan Company of Canada Limited, Toronto) 169 p. Illus. \$7.50

The conduct of this symposium on tooth eruption and support was timely and commendable. Contributors came from all over the world. They are well known for their excellence in basic research. Most of the papers were very good. Some were general reviews and some presented results of original work. The 32 papers concerned fundamental properties of connective tissue, the dento-gingival junction, arrangement of the tissues in the periodontium, eruption, adjustments in the supporting tissues during function, and tooth mobility.

Although there were stimulating discussions of the papers, these are not included. Their publication would have entailed ad-

ditional cost. This is unfortunate, because discussions and other means of co-ordinating and integrating the material would greatly improve the book and help it to achieve its aims. Other means were also used to reduce printing costs. Again, the intent is good but the product suffers. For example, the illustrations are very clear and sharp, but the comparatively faint type-written text on glossy paper is difficult to read. Despite these efforts the price seems high for a small book. This may be valid, however, in view of the book's potential circulation. For although the topic is important to all dentists and the information contained is pertinent and fascinating, the content in its present form is of most interest and value to dental researchers and teachers than to general practitioners.

While I highly recommend this book for teachers and researchers, it is to be regretted that the material was presented over two years ago and that more recent papers by some of the participants are already in print.

D. L. Anderson

World Directory of Dental Schools

Geneva, World Health Organization, 1967. (Available through the Queen's Printer, Ottawa) Also published in French. 282 p. \$6.75

Six years have elapsed since the publication, in 1961, of the first *World Directory of Dental Schools*. The new Directory reflects the changes that have taken place in dental education during this period. It lists dental schools in 72 countries and, as in the previous edition, gives pertinent data about each institution and includes a general statement describing the salient features of undergraduate dental education in each country.

The statements about each country have been checked by the competent governmental authorities. Data concerning individual schools have been obtained directly from the schools themselves.

The Directory has been enlarged by the inclusion of information on the admission of foreign students to dental schools and on conditions governing the practice of dentistry by nationals with foreign qualifications, foreigners with foreign qualifications, and foreigners who have qualified in the country. In addition, information on requirements for practice in countries with no dental schools is presented in a series of annexes.

Although, for the purpose of this Directory, stomatological education is taken as synonymous with dental education, this does not mean that dental education is

everywhere at the same level. In some of the newly independent countries certain schools confer diplomas that have only a national validity. Since there is no internationally accepted system establishing minimum standards for dental education, data on such schools have been included in the present volume.

WHO Staff

Advances in Dental Histology

W. A. Gaunt, J. W. Osborn and A. R. Ten Cate. Bristol, John Wright & Sons Limited, 1967. (Available from The Macmillan Company of Canada Limited, Toronto) 104 p. Illus. \$3.50

John Wright & Sons of Bristol have established a refreshingly interesting pattern in the publication of their Dental Practitioner Handbook series. As far as I am aware, all their previous publications have been on clinical problems, but in this handbook they have allowed a well known group of research workers to present current thinking and advances in dental histology.

The authors have approached their task with courage. They have made an earnest attempt to move from pure morphology to the dynamics of cells and tissues, a method frequently lost in larger textbooks on the subject. They have also relied upon superb line drawings, instead of photomicrographs to support their text. One might quibble with the emphasis here and there in the text or the omission of certain items, but it would be virtually impossible in a handbook of this size to satisfy everybody. Nevertheless, this soft covered volume fills a void in the reading done by undergraduate students and practitioners. To both I strongly recommend it as a good investment. I also hope that the publishers will encourage the publication of similar handbooks in other basic dental sciences.

J. R. Trott

A Guide to Dental Practice

M. B. Treweek. Toronto, Pergamon of Canada, Ltd., 1966. 90 p. Illus. \$4.00

This interesting and informative book describes the practice of dentistry in Britain under the headings of: the National Health Service, mixed practice, private practice, hospital and/or university appointments, and the armed services.

Since much of the practice of dentistry in the United Kingdom is linked in some way with the National Health Service, a large part of the book is devoted to the administration, working conditions, regulations and

ethics involved in such a scheme. This material, although interesting, has little or no practical application for the dentist in private practice in North America.

However, the chapters on setting up a practice, practice organization, patient management and dental emergencies contain a great deal of useful information, particularly for a graduate starting practice.

J. Kreutzer

A Handbook of Dental Malpractice

L. B. Wood. Springfield, Illinois, Charles C. Thomas, 1967. (Available from The Ryerson Press, Toronto) 100 p. \$6.50

As the author indicates, this is a handbook. It is written in short sections that greatly facilitate its readability especially for the busy dentist. It points out the circumstances under which the dentist may be sued for malpractice, fraud, trespass, assault and breach of contract as well as covering the subject of property liability. The most interesting feature of the book is the use of examples of malpractice suits; these examples contain a concise history of the circumstances of the action, the verdict, any higher court decision and a reference to where more details may be obtained if desired. This book is especially useful for anyone with a particular interest in dental jurisprudence.

The author discusses the duties and obligations that the dentist owes to the public and to his patients. While there is a marked increase in malpractice claims in the USA, this is fortunately not the case to the same extent in Canada. But this does not mean that Canadian dentists need not be vigilant and ever mindful of the possibility of a malpractice action. This book of less than 100 pages serves as a reminder of what may happen if a practitioner is not careful. It advises how the dentist may prevent the initiation of legal action in the first place, and secondly how he may defend himself successfully in the event of such a suit.

K. F. Pownall

Emergencies in Dental Practice

F. M. McCarthy. Philadelphia and London, W. B. Saunders Company, 1967. (Available from McAinsh & Co. Limited, Toronto) 452 p. Illus. \$16.20

By definition, an emergency is "any unforeseen circumstance requiring immediate action." For their own protection as well as for the protection of their patients, dentists

must continually re-evaluate their knowledge of the prevention, recognition and treatment of emergency problems.

Prior to the publication of this book, the author assembled a most comprehensive symposium on emergencies in the November 1965 issue of *Dental Clinics of North America*. In the present book, several renowned and knowledgeable dental and medical authorities cover in depth a variety of subjects. Its most important contribution is the stress placed on prevention. Basic background knowledge is necessary before the clinician can act to prevent, diagnose or treat. The author certainly recognizes this and devotes well over half of the book to prevention and recognition. Other excellent features are the concise but complete chapters on drug therapy, special considerations for paediatric and geriatric patients, shock, establishment of an emergency airway, and the legal aspects of dental emergencies. The only serious omission is a lack of discussion about the recognition and treatment of acute odontogenic infections of the head and neck. This is a definite unforeseen circumstance requiring immediate action. It should, therefore, be included in any text on dental emergencies.

All other aspects of emergency prevention, recognition and treatment are excellently covered. This is a textbook that should be included in the reference library of all students, teachers and practitioners of dentistry.

Simon Weinberg

Endodontics

E. Nicholls. Bristol, John Wright & Sons Limited, 1967. (Available from The Macmillan Company of Canada Limited, Toronto) 288 p. Illus. \$11.35

Endodontics by E. Nicholls is a new book on this subject, published by John Wright & Sons Limited in England. Its scope extends from diagnosis to bleaching and restoration of endodontically treated teeth. The techniques described are along widely accepted lines. The black and white illustrations, and especially the diagrams, are well done.

The book is essentially a clinical text, basic sciences receiving only cursory treatment. This makes for easy reading, particularly if one is interested only in checking techniques. *Endodontics* can nevertheless be considered complete and up-to-date because it includes hemisection and treatment of special conditions such as perforated roots. Teeth requiring such treatment were discarded in the early years of endodontic treatment. Also discussed is the therapeutic use of corticosteroid preparations, such as Ledermix. This is a subject for lively debate at the present time.

E. C. Aho

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Mouth detectives

April is 'Cancer Control Month,' a time to remember that oral cancer kills about 600 Canadians every year and maims countless others. The dentist knows that he can do much to prevent these tragic consequences and he has not been lacking in resolve. His difficulty has been that of not knowing precisely where or when to look for suspicious lesions. Dr. Anderson's article, "Oral cancer incidence in central and western Canada," on page 180, promises to dispel much of this uncertainty.

The author's analysis of incidence patterns in Saskatchewan, Manitoba, Ontario and Quebec again confirms that overall susceptibility to oral cancer increases with age and predominates in men. But lip cancer is far commoner in agricultural western Canada and Ontario's farming areas than elsewhere in the two central provinces. Intra-oral cancer, on the other hand, is more prevalent in Ontario and Quebec than in the west. The lower lip emerges as the most susceptible site in older rural Ontario men. Less often afflicted are the lateral margin of the tongue, the anterior floor of the mouth, the remainder of the tongue, the buccal mucosa and the lower gingiva. Interestingly, the incidence of floor and soft palate cancer is on the upswing in Ontario men under 65 years, whereas buccal and gingival cancer is declining. Buccal mucosa cancer, nevertheless, remains more prevalent in Ontario than elsewhere, notably in southern regions bordering the Great Lakes.

Equally significant is the finding that patients with single lesions of the lip, palate, buccal mucosa or gingiva are apt to develop a second lesion, especially when there is a history of leucoplakia at the initial site. This phenomenon seems to be related to the duration of survival which is, in part, a function of the primary lesion's regional and local invasiveness.

Anderson believes that residence in urban or rural environments has something to do with mouth cancer incidence, but this relationship is far from clear. He cites the postulated association between rural residence, occupation (farming), lower lip cancer and that organ's more direct exposure to the actinic rays of the sun. At the same time, he cautions against drawing any hasty conclusions. Occupational exposure, he suggests, may partially account for the distribution of lower lip cancer but it fails to explain why intra-oral cancer is four to five times commoner in the lower half than in the upper half of the mouth.

These lingering uncertainties need not detract from the importance of Anderson's findings. They should, in fact, spur the dentist to an even greater awareness of his professional responsibility for the health of his patients. Armed with new knowledge, it is his duty to use his own diagnostic acumen as well as oral cytology and biopsy in a determined effort to raise the five-year cure rate for oral cancer.

D'autres "français canadiens": les chirurgiens-dentistes

Depuis 1892, deux catégories de praticiens ont officiellement dans notre pays le droit d'exercer l'art dentaire: les chirurgiens-dentistes et les médecins.

Alors que dès le milieu du siècle dernier le doctorat en chirurgie dentaire d'exercice était créé aux Etats-Unis et qu'en Allemagne un doctorat en médecine dentaire postulé aujourd'hui par tous voyait le jour au début du 20^e siècle, il existe encore en France à l'heure du Marché commun, dans certaines sphères — et non des moindres — des partisans d'une régression de nos titres et de notre capacité professionnelle.

Certes, lorsqu'il s'agit de soigner les dents, la bouche et les maxillaires de 50 millions de Français, personne n'a l'impudence de mettre en garde les patients contre le danger qu'ils courent en se faisant traiter par nous; on se contente d'une brimade discriminatoire et l'on conserve soigneusement une inégalité de tarifs entre les lettres D et K.

Certes un doctorat du troisième cycle nous a été généreusement octroyé au moment même où la mise en place d'un doctorat d'exercice eût été indispensable.

Certes nous aurons des écoles de chirurgie dentaire; espérons qu'elles au moins serviront à la promotion universitaire de notre profession en attendant les facultés.

Depuis 1948 nous sommes théoriquement couverts par un arrêté Poinso-Chapuis qui dès sa promulgation n'a jamais été respecté parce que trop restrictif. Des propositions de modification ont été étudiées et mises au point, par la profession en tenant compte de l'évolution générale de l'odonto-stomatologie et du progrès des connaissances et des techniques.

Toutefois récemment les milieux dits "bien informés" laissaient entendre que les nouveaux textes seraient en recul par rapport à ceux d'il y a 30 ans. Tout se passe comme si nous parlions deux langages différents.

On écoute, on comprend les médecins qui exercent notre profession. On nous écoute, on ne nous comprend pas!

Y aurait-il aussi chez nous, deux poids et deux mesures?

Jacques Charon

Cet éditorial a d'abord paru dans le numéro du 20 septembre 1967 du *Chirurgien-Dentiste de France*

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.

56th Annual Session, FDI

To the Editor:

The Fédération Dentaire Internationale is holding its 56th annual session in Varna, Bulgaria, Sept. 16-22. The main problems to be discussed in the scientific program are (1) early diagnosis of oral tumours; (2) reactions of oral tissues to prosthetic appliances; and (3) diagnostic methods in dentistry. A number of well known specialists have already agreed to appear on the program.

According to FDI regulations, every supporting member of the Federation is entitled to participate in the scientific program with free communications, table clinic demonstrations or films. The data required for the presentation of table clinics are as follows: name and address of the clinician, clinician's degree, and a summary of the material to be presented in the table clinic demonstration. This information should be sent to the Bulgarian Scientific Committee, P.O. Box 1117, 8 Belo More Str., Sofia, Bulgaria, before May 1.

Simultaneous interpretation in English, French, German, Russian and Bulgarian will be provided in two of the halls intended for free communications. Table clinics will be

scheduled for 1½-3 hours, depending on the number of applications received by the Scientific Committee. Rooms with equipment for projection of slides will be provided. The Scientific Committee will notify dentists whose table clinic presentations have been approved. Such notification will be sent by June 15, 1968, at the latest. The final program of the annual session will contain the names of the participants in the scientific program.

K. Kevorkyan, Secretary,
Bulgarian Scientific Committee, FDI,
Sofia, Bulgaria.

American Dentist Seeks Former Dental Assistant

To the Editor:

I would greatly appreciate anything you can do in helping me to locate a Mrs. Emma Maskena who emigrated from Erlangen, Germany, to Canada several years ago. She came originally from Latvia and was one of many displaced persons in Germany during and after the war.

While residing in Erlangen, Mrs. Maskena worked as a dental assistant for an American dentist. I believe that she continued to follow this work after emigrating to Canada. It is also possible that she may have remarried, but it should not be too difficult to locate her under her former married name.

I knew Mrs. Maskena very well while I was stationed in Erlangen, and I would very much like to get in contact with her again, if possible. I was a captain when in Erlangen, but Mrs. Maskena will remember my name regardless of my present retired rank. I have tried to locate her through the Canadian Department of Immigration, but this department does not keep records of immigrants as we do in this country. I would appreciate it if any of your readers, for whom she may have worked, would write and let me have her present address.

Fred Myers,
Lt.-Col. USAF (Ret.),
1831 North Ainsworth St.,
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Oral cancer incidence in central and western Canada

Susceptibility to oral cancer increases with age, the high risk segment of the population being 45 years and older. Men are particularly susceptible, but male predominance is decreasing. For Ontario men over 45 years the most susceptible oral sites in decreasing order are the lower lip in rural residents, lateral margins of the tongue, anterior floor of the mouth, remainder of the tongue, buccal mucosa and lower gingiva. Cancer of the floor of the mouth and soft palate is becoming more prevalent in those under 65 years, whereas buccal mucosa and gingival cancer in men is decreasing. Saskatchewan, particularly, and Manitoba have a much higher incidence of lip cancer than Quebec and Ontario. The reverse is true for intra-oral cancer. These differences seem to be related to urban-rural residence distribution. Lip cancer is highest in the farming areas of Ontario and in the agricultural western provinces. Cancer of the floor of the mouth and gingiva predominates in Ontario cities. Cancer of the buccal mucosa is much more prevalent in Ontario than elsewhere, predominating in southern rural areas adjacent to the Great Lakes. Patients with a single lesion of the lip, palate, buccal mucosa or gingiva are liable to develop a second lesion, especially if there is a history of leucoplakia at the initial lesion. There may be two different forms of oral squamous cell carcinoma. One of these tends to be superficial and multiple; the other is single and more invasive when 1-2 cm. in size.

Dentists have a good opportunity to detect cancer early. They see a large proportion of the population. Moreover, the mucous membranes of the mouth are readily accessible and visible. Although an earlier report¹ stressed the importance of early detection, we have lacked information about the incidence and distribution of oral cancer. Such information is essential to early detection and for the evaluation of detection programs. Identification of the high risk segments of the population and of the susceptible oral sites should facilitate detection and may provide clues about the causes of oral cancer. This knowledge will also stimulate dentists to play a more active role in this field.

Cancer is a notifiable disease in Saskatchewan, Manitoba and Quebec, but not in Ontario. Saskatchewan Cancer Commission records give accurate information on cancer incidence in that province.² There has been a Central Cancer Registry in Manitoba since 1937, and a cancer incidence study began there in 1958. Some 94.2 per cent of the new cases in Manitoba were recorded in 1965.³ An estimated 85 per cent of the new cancer cases in 1964 were recorded in the Quebec Tumour Registry.⁴ A province-wide survey of incidence and prevalence began in Ontario in 1965, but incidence figures are not yet available. The Ontario figures which are available are derived principally from radiotherapy centres, and the number of cancers recorded for various sites depends on the selection made for surgery or radiotherapy. Total new cases

for 1964 at various sites were estimated by the Medical Statistics Branch of the Ontario Department of Health from case-to-death ratios observed in the northern United States. These estimates were then compared with the new cases registered at the Ontario Cancer Clinics. Only in the 'buccal and pharynx' category did the new cases registered at the Ontario Clinics equal or exceed the estimate for total new cases among Ontario residents.⁵

The figures from these four provinces therefore portray oral cancer incidence in 73 per cent of Canada's population (Table 1).

FINDINGS

Provincial incidence figures (cases per 100,000 people) vary considerably for all sites except the palate (Table 2). Manitoba's lip cancer incidence is twice that of Quebec and Ontario, and Saskatchewan's incidence is twice that of Manitoba. On the other hand, intra-oral cancer incidence in Manitoba is one and one-half times that of Saskatchewan, while Quebec's incidence is almost twice that of Saskatchewan. Saskatchewan's buccal mucosa cancer incidence is higher than Quebec's, but Ontario has the highest buccal mucosa incidence — three times that of Quebec.

Salivary gland cancers in Manitoba match intra-oral cancers (Table 2). In Quebec salivary gland cancer incidence approximates that of the floor of the mouth, palate, gingiva and buccal mucosa.

La susceptibilité au cancer buccal augmente avec l'âge, le groupe le plus susceptible ayant 45 ans et plus. Les hommes y ont plus tendance que les femmes mais cette prédominance masculine est en voie de diminution. En Ontario, chez les hommes de plus de 45 ans, les régions les plus favorables au cancer buccal sont par ordre décroissant: la lèvre inférieure chez les résidents des régions rurales, les bords de la langue, le plancher antérieur de la bouche, le reste de la langue, la muqueuse buccale et la gencive inférieure. Le cancer du plancher de la bouche et du voile du palais devient plus fréquent chez les personnes de moins de 65 ans alors que les cas de cancer de la muqueuse buccale et de la gencive diminuent chez les hommes. La Saskatchewan, en particulier et le Manitoba ont une incidence beaucoup plus élevée de cancer de la lèvre que le Québec ou l'Ontario. Le contraire est vrai du cancer intra-oral. Ces différences semblent provenir de la répartition de la population entre les villes et les campagnes. Le cancer de la lèvre est le plus fréquent dans les régions agricoles de l'Ontario et dans les provinces agricoles de l'Ouest. Le cancer du plancher de la bouche et de la gencive prédomine dans les villes de l'Ontario. Le cancer de la muqueuse buccale est beaucoup plus fréquent en Ontario que partout ailleurs, particulièrement dans les régions rurales du Sud, près des Grands Lacs. Les patients ayant une seule lésion de la lèvre, du palais, de la muqueuse buccale ou de la gencive ont tendance à produire une deuxième lésion, particulièrement s'il avait leucoplasie au moment de la formation de la lésion initiale. L'épithélioma cellulaire squameux de la bouche peut se présenter sous deux formes: l'une tend à être superficielle et multiple, l'autre plus réduite, unique et plus profonde quand la lésion s'étend de 1 à 2 cm.

TABLE 1 Number of cases of oral cancer.

Site	Quebec 1963-65	Ontario 1962-66	Manitoba 1958-65	Saskatchewan 1961-65
Lip	695	1,114	511	602
Tongue	264	377	59	34
Floor of mouth	91	199	36	10
Palate	62	97	} 82	17
Gingiva	70	150		10
Buccal mucosa	22	133		9
Intra-oral, not stated	32	24		
Salivary glands	236	162	180	

Reported Ontario cases are one-third those of Quebec and one-fifth those of Manitoba. Most salivary gland cancers occur in the parotid gland.

The age distribution of oral cancer is given in Table 3. In Quebec 85-90 per cent of oral cancer occurs in people 45-84 years old. In Ontario 90 per cent of oral cancer occurs in the 45-84 age group, with 42 per cent in the 45-64 age group, and 48 per cent in the 65-84 age group.

In Quebec and Ontario over 90 per cent of lip cancer occurs in men; intra-oral

cancer also predominates in men (Table 4). The male predominance of intra-oral cancer increases with age in Quebec but not in Ontario.

Quebec has a younger population than the other three provinces. Ontario, Manitoba and Saskatchewan have a similar percentage of the population under 45 years of age (Table 5). Beyond that level, however, the percentage of men in Saskatchewan gradually increases (Table 6). The percentage of men remains the same in Manitoba, but in Ontario it drops from

TABLE 2 Number of cases of oral cancer per year per 100,000 population.

Site	Quebec	Ontario	Manitoba	Saskatchewan
	Average population in thousands for 1961 and 1966			
	5520	6599	943	940
Lip	4.2	3.4	6.8	12.8
Total intra-oral	3.3	3.0	2.4	1.7
Tongue	1.6	1.2	0.8	0.7
Floor	0.6	0.6	0.5	0.2
Palate	0.4	0.3	} 1.1	0.4
Gingiva	0.4	0.5		0.2
Buccal mucosa	0.1	0.4		0.2
Intra-oral, not stated	0.2	0.1		
Salivary glands	1.4	0.5	2.4	

TABLE 3 Oral cancer distribution according to age.

Site	Age			
	Under 45	45-64	65-84	85+
Quebec				
Lip	8.9%	39.7%	45.8%	5.6%
Tongue	4.6	37.6	52.9	4.9
Rest of mouth	5.9	35.9	51.2	7.0
Ontario				
Lip	8.4	43.6	45.2	2.8
Tongue	7.4	40.8	47.5	4.3
Rest of mouth	4.0	42.0	50.4	3.6

TABLE 4 Oral cancer distribution according to sex. Percentages of various oral cancers in men.

Site	Age			
	Under 45	45-64	65-84	85+
Quebec				
Lip	86.7%	91.8%	92.5%	89.5%
Tongue	66.6	76.8	81.3	100.0
Rest of mouth	68.8	79.7	86.4	94.8
Ontario				
Lip	86.7	97.5	93.9	80.0
Tongue	75.0	74.0	76.3	78.6
Rest of mouth	73.8	74.7	72.0	89.0

50.3 per cent at age 45-64 to 36.4 per cent in the over 85 year old group. In Quebec the percentage of men also drops with age, though not as sharply as in Ontario. Nearly half the residents of Ontario, Quebec and Manitoba live in cities of 90,000 or more, but in Saskatchewan less than one-quarter do. More than half the residents of Saskatchewan are rural, and one-third live on farms. About a third of the Manitoba population is rural, but in Ontario and Quebec less than one-quarter is rural (Table 7).

Overall cancer incidence at most oral sites differs in the four provinces (Table 2). But incidence at three oral sites is much more uniform when specific population segments are considered (Table 8). This similarity is portrayed by floor and gingival cancer incidence in urban populations (cities of 90,000 or more) of all four provinces; also by lip cancer incidence in farm populations. Other oral sites do not reflect this equalizing trend. Urban and rural oral cancer distribution should therefore be determined for each site when data are available.

Table 9 gives the urban distribution of oral cancer in Ontario. Forty-six per cent of the province's men and 48 per cent of the women live in five counties with large cities (Toronto, Hamilton, Ottawa, London and Windsor). The number of oral cancer patients in these counties has been compared to the number residing elsewhere in the province. In the urban counties men have more floor and gingival cancers but fewer lip and buccal mucosa cancers than would be expected on the basis of the population. Women in the urban counties have higher cancer

TABLE 5 Population distribution according to age and sex.

Sex	Age			
	Under 45	45-64	65-84	85+
Quebec				
Male	78.2%	16.2%	5.3%	0.3%
Female	77.1	16.5	6.0	0.4
Ontario				
Male	74.2	18.4	6.9	0.5
Female	72.7	18.3	8.4	0.6
Manitoba				
Male	72.2	18.8	8.4	0.6
Female	71.5	18.9	9.0	0.6
Saskatchewan				
Male	71.7	18.6	9.1	0.6
Female	73.1	18.2	8.3	0.4

TABLE 6 Population distribution according to sex. Percentages of men in various age groups.

Province	Age			
	Under 45	45-64	65-84	85+
Quebec	50.4%	49.5%	47.0%	41.1%
Ontario	50.6	50.3	45.2	36.4
Manitoba	50.8	50.6	48.8	50.0
Saskatchewan	51.0	52.0	53.7	60.0

TABLE 7 Population distribution according to residence.

Province	Urban 90,000+	Rural	Rural Farm
Quebec	50.1%	25.8%	10.7%
Ontario	47.4	22.7	8.1
Manitoba	50.5	36.1	18.7
Saskatchewan	22.5	57.0	33.0

TABLE 8 Cases of oral cancer per 100,000 of urban and rural population.

Province	Urban 90,000+		Rural		Rural farm
	Floor	Gingiva	Lip	Buccal mucosa	Lip
Quebec	1.1	0.9	17.1	0.5	41.0
Ontario	1.1	1.0	16.5	1.9	44.0
Manitoba	1.0		19.2		37.2
Saskatchewan	1.0	1.0	22.8	0.3	39.4

TABLE 9 Oral cancer distribution in Ontario urban counties.

Sex	Lip	Tongue	Floor	Palate	Gingiva	Buccal mucosa	Ontario population
Male	30 %	48 %	58 %	48 %	54 %	32 %	46 %
Female	60	61	55	81	60	57	48

Urban counties: York, Wentworth, Carleton, Middlesex and Essex.

rates at all oral sites than do women elsewhere in Ontario. Similar results ensue when nine cities with populations of 100,000 or more are compared with the remainder of the province.

Men's lip and buccal mucosa cancer rates in the counties have been grouped according to latitude, proximity to the Great Lakes, and rural or urban characteristics. Male lip cancer, most prevalent in the rural areas of southern Ontario, decreases progressively in central and northern counties (Table 10 and map). Male buccal mucosa cancer is three times commoner in southern rural counties bordering the Great Lakes than in inland rural counties or urban counties of southern Ontario, and two to three times more prevalent than in northern counties.

The order of susceptibility of intra-oral sites (in cases per million Ontarians during 1962-66) is derived from Table 11. Values for men are: tongue 15, floor 9, gingiva 5, buccal mucosa 5, and palate 3. Values for women are: tongue 5, gingiva 3, buccal mucosa 2, floor 2, and palate 1.

Table 11 compares new oral cancers registered at the Ontario Cancer Clinics between 1962 and 1966 and those registered between 1933 and 1952.^{6,7} There are marked changes in the incidence of cancers of the floor, soft palate, hard palate, gingiva and buccal mucosa. Table 12 indicates the age groups where these changes have occurred in men. Floor and

soft palate cancer have tripled in the 45-64 age group. Buccal mucosa cancer has decreased fourfold in men of the same age. Cancer of the buccal mucosa and gingiva has been halved in the 65-84 age group. Ninety-seven per cent of oral cancers, excluding salivary gland tumours, were and remain squamous cell carcinoma.

Table 12 also shows that the present incidence in the 65-84 age group is three times greater than in the 45-64 age group. It is noteworthy that 42 per cent of Ontario oral cancer occurs in people aged 45-64, and 48 per cent occurs in those aged 65-84 (Table 3); yet the 45-64 age group constitutes 18.4 per cent of the total population, whereas the 65-84 age group represents a mere 7.7 per cent (Table 5).

Male predominance (Table 13) has decreased at all intra-oral sites except the tongue. The greatest change, observed in buccal mucosa cancer, is due to fewer male cases. The smaller male-female ratio for gingival cancer is due to fewer male cases and more female cases. The smaller ratios for floor and soft palate cancer are due to relatively more female than male cases (Table 11).

Cancer of the hard palate used to be more frequent than soft palate cancer, but a decrease in hard palate and an increase in soft palate lesions has produced a ratio of three soft palate cancers for every cancer of the hard palate. Ratios at the other subsites have not changed

TABLE 10 Oral cancer distribution in Ontario county groups.

Site	Map reference							
	1	2	3	4	5	6	7	8
	Cases per 100,000 of male population							
Buccal mucosa	1.1	0.4	1.0	0.4	0.2	0.4	0.4	0.5
Lip	11.0	2.0	11.0	2.5	7.5	5.0	7.0	4.0

appreciably (Table 14). Cancer of the anterior floor is still five times commoner than posterior floor cancer. The lateral margin is the part of the tongue most often involved. Cancer of the lower gingiva was and is twice as common as cancer of the upper gingiva. The lower half of the inside of the mouth is affected five times oftener than the upper half. The ratio of lower lip to upper lip cancer is 19 to 1.⁸

A patient who has one malignant oral lesion is very apt to have another one (Table 15). When the initial lesion oc-

curs on the lip, buccal mucosa, palate or gingiva, the chance of having another separate oral cancer is nearly twice as great as when the lesion is on the tongue or floor of the mouth.

Leucoplakia is twice as common in patients who develop multiple oral lesions as in those with single lesions.

DISCUSSION

Oral cancer rates vary considerably in each of the four provinces. Manitoba and

MAP OF ONTARIO

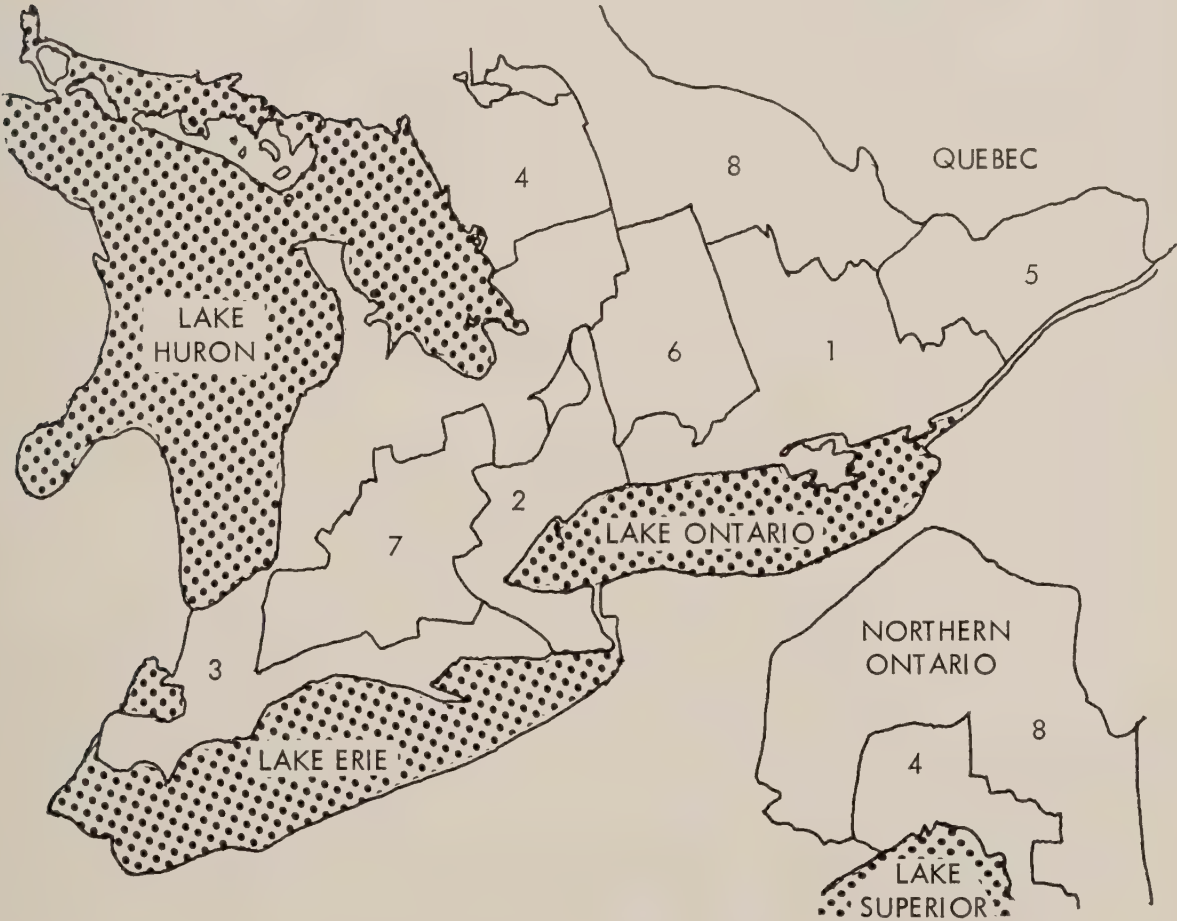


TABLE 11 Past (1933-52) and present (1962-66) oral cancer in Ontario according to sex.

Site	No. of cancers				Cases per 100,000 population			
	Male		Female		Male		Female	
	62-66	33-52	62-66	33-52	62-66	33-52	62-66	33-52
	Average population in thousands: 3308					1995	3291	1944
Intra-oral	632	1773	216	401	3.8	4.8	1.3	1.2
Tongue	244	468	80	173	1.5	1.6	0.5	0.6
Floor	153	238	29	23	0.9	0.6	0.2	0.1
Soft palate	40	54	11	9	0.2	0.1	0.1	—
Hard palate	12	59	5	21	0.1	0.2	—	0.1
Gingiva	88	401	49	94	0.5	1.0	0.3	0.2
Buccal mucosa	76	501	37	65	0.5	1.3	0.2	0.2
Not stated	19	40	5	11	0.1	0.1	—	—

1962-66 figures are for squamous cell carcinoma which is 97 per cent of the total.
1933-52 figures are for total cancer. In Toronto, 1929-58, squamous cell carcinoma is 97 per cent of the total.
Tongue cancer figures are for 1936-50 instead of for 1933-52.

Saskatchewan have a much higher rate for lip cancer than do Quebec and Ontario. (Surgically treated cases are, however, not recorded in Ontario.) There is a reversal for intra-oral sites, Ontario and Quebec having much higher rates than Saskatchewan.

Age and sex are very significant factors in oral cancer incidence. The disease predominates in older men. The low incidence of intra-oral cancer in Saskatchewan could therefore be suggestive of a younger male population; yet, the opposite is true. In Saskatchewan the proportion of men increases with age, whereas it decreases in Ontario. Quebec is the

province with the youngest population. Ontario, Manitoba and Saskatchewan populations have a very similar age composition. Thus, intra-oral cancer rates cannot be explained by age-sex differences alone.

Urban-rural resident distribution appears to influence oral cancer incidence in all four provinces. Floor and gingival cancer rates are quite uniform in the large city segment of the population. Likewise, lip cancer rates are similar in the rural and farm segments of the population. This accords with the predominance of male lip cancer in the rural farming area of southern Ontario. Furthermore,

TABLE 12 Past (1933-52) and present (1962-66) oral cancer in Ontario men according to age.

Site	Age			
	45-64		65-84	
	62-66	33-52	62-66	33-52
	Average population in thousands:			
	611	396	228	144
Cases per 100,000 male population				
Intra-oral	8.7	8.7	26.6	38.6
Tongue	3.2	3.1	10.0	11.4
Floor	2.6	1.0	5.5	4.6
Palate, soft	0.7	0.2	1.4	1.3
Gingiva	1.2	1.4	3.8	8.2
Buccal mucosa	0.6	2.3	4.6	10.1

TABLE 13 Past and present oral cancer in Ontario: male-female sex ratios.

Period	Tongue	Floor	Palate		Gingiva		Buccal mucosa
			Soft	Hard	Upper	Lower	
1962-66	3:1	5:1	4:1	2:1	2:1	2:1	2:1
1933-52	3:1	10:1	6:1	3:1	3:1	5:1	8:1

the high incidence of lower lip cancer in white men has been attributed to prolonged exposure to actinic rays of the sun.⁹ Such exposure is an occupational hazard of farmers. Saskatchewan and Manitoba are primarily agricultural provinces, whereas Ontario and Quebec are much more industrialized. The population of all four provinces is almost entirely white.

Floor and gingival cancer in men and all forms of oral cancer in women predominate in Ontario cities. Possibly the urban environment contributes to the development of these tumours.

Male buccal mucosa cancer predominates in rural areas, but the actual rates vary. The highest rates occur in small towns and rural areas of southern Ontario bordering the Great Lakes. Unlike lip cancer, utilization of the rural population does not equalize the buccal mucosa cancer rate in the four provinces. Ontario, the only province bordering the Great Lakes, has by far the greatest incidence of buccal mucosa cancer. Elsewhere, this incidence varies considerably in different regions and countries,¹⁰⁻¹² being very high in some Far Eastern countries.¹²

Despite Ontario's high incidence of buccal mucosa cancer, the present rate is

much lower than 20 years ago.¹³ The decrease has occurred entirely in men. Gingival cancer has likewise diminished in elderly men. Cancer of the hard palate has decreased in both sexes; the opposite is true for the soft palate. Soft palate and floor cancers have increased mainly in those aged 45-65. These rate changes probably will not affect survival rates. The five year survival rate in the 1929-58 Toronto group is 44.7 per cent for floor and palate cancer, and 44.0 per cent for buccal mucosa and gingival cancer.¹

Growth of Ontario's urban population over the last 20 years could partly account for the increased floor cancer and decreased buccal mucosa cancer. Yet, male gingival cancer, more prevalent in urban areas, declined during the same period. Soft and hard palate cancers in women are predominantly urban, whereas their distribution in men approximates that of the general population. Such distributions apparently do not influence the decrease in hard palate cancer and increase in soft palate cancer.

Although the ratio of hard to soft palate cancer has markedly changed, ratios at other subsites have remained fairly uniform. Lip cancer predominantly affects the lower lip; floor cancer occurs mainly in the front of the mouth; lateral margin

TABLE 14 Past and present oral cancer in Ontario: subsite ratios.

Subsites	Present			Past		
	No.	Place and period	Ratio	Ratio	Place and period	No.
Male lip, lower to upper	168	O 66	19:1	19:1	O 38-55	4,069
Intra-oral, lower to upper	706	O 62-66	5:1	4:1	T 29-58	1,447
Tongue, lateral margins to rest	73	H 59-66	2:1	3:2	T 29-58	633
Floor, anterior to posterior	40	H 59-66	5:1	6:1	T 29-58	178
Palate, soft to hard	68	O 62-66	3:1	4:5	O 33-52	143
Gingiva, lower to upper	132	O 62-66	2:1	2:1	O 33-52	454

O—Ontario, T—Toronto, H—Hamilton.

TABLE 15 Percentage distribution of multiple lesion oral cancers in Ontario.

Period	Tongue	Floor	Palate	Gingiva	Buccal mucosa	Lip
Ontario 1962-66	8.0%	6.0%	14.7% *	11.7%	11.5%	16.2% †
Toronto 1929-58	6.2	4.6	11.4	10.8	18.7	17.0 ‡

*Palate: soft 11.8 per cent; hard 23.5 per cent.
†Ontario percentage in 1966.
‡Ontario percentage in 1938-55.

TABLE 16 Percentages of single lesion and multiple lesion cancers in Ontario associated with leucoplakia.

Period	Multiple	Single
Hamilton 1959-66	25.0%	8.1%
Toronto 1929-58	15.3	8.3

cancer of the tongue is twice as frequent as cancer elsewhere on the tongue; and cancer of the lower gingiva is twice as common as cancer of the upper gingiva. The predominance of lower lip cancer has been attributed to that organ's more direct exposure to sunlight; yet intra-oral cancer is four to five times commoner in the lower half than the upper half of the mouth.

The net effect of the changes over the last 20 years has been a reduction in male predominance at all intra-oral sites except the tongue. Even in the tongue there has been a change as reflected by a shift in male-female ratios from 4:1 to 2:1 recorded at the Toronto Cancer Clinic between 1929-38 and 1949-58.¹⁴ Overall, the incidence of intra-oral carcinoma has decreased in men and increased slightly in women. Other observers have reported a similar trend.¹⁵⁻¹⁸

The association between leucoplakia and multiple lesions is equally significant. Oral cancer patients with leucoplakia are likely to develop further new primary tumours if they survive. They should therefore be urged to break smoking and drinking habits. Multiple lesions are less frequent in patients with tongue and floor cancer than in patients with cancer of the palate, gingiva, buccal mucosa or lip. The chance of developing additional lesions is related to the duration of survival. The lip cancer patient is likely to survive

longer than the patient with intra-oral cancer. The lip cancer patient is therefore more apt to develop additional lesions. The five year survival rate in the patients registered in Toronto between 1929 and 1958 is 38.5 per cent for tongue and floor cancers combined, and 43.3 per cent for lesions of the palate, gingiva and buccal mucosa.¹ Forty-one per cent of the patients with single lesions of the tongue margins, floor, palate and buccal mucosa survived five years, whereas 49 per cent with initial cancers at the same sites and subsequent multiple lesions survived five years. Tongue and floor cancers of 1-2 cm. surface size extend far more readily than similar cancers of smaller size. Buccal and gingival mucosa cancers do not reflect the same pattern.¹ A comparison between single and multiple malignant lesions reveals that extension is more frequent in patients with the single lesion. The defects in tongue and floor single lesion patients are, however, larger and this may account for the difference in extension. Single and initial multiple lesions of the gingiva and buccal mucosa are more similar in size, but the single lesion tumour extends almost twice as frequently (30 vs. 16 per cent) to local structures and lymph nodes.

This raises the possibility that two different forms of mouth cancer exist.¹⁹ One form seems to be more surface-oriented. This lesion is usually superficial when less than 2 cm. in size. It often involves multiple surfaces, is frequently associated with leucoplakia, and primarily affects lip, gingiva or buccal mucosa. The other form invades deeper structures earlier. It tends to be single, is less commonly leucoplakic and has a predilection for the tongue and floor of the mouth.

Of pertinence are the two forms of buccal mucosa cancer described by Rich-

ards and Ash.²⁰ The first has an elevated irregular mass, a rough granular surface, and a soft velvety texture. It is vascular and may be friable or ulcerated. This lesion is generally single, usually of recent origin and may develop in weeks. The other cancer is flat and hard. It may be ulcerated and multiple and usually develops from long-standing leucoplakia. Ackerman and Del Regato¹⁰ describe gingival and buccal mucosa lesions as ulcerating, exophytic or verrucous. Verrucous lesions are well differentiated. They spread on the surface and are invasive when advanced, but they rarely involve lymph nodes.²¹

CONCLUSION

Ontario Cancer Clinic data have established susceptibility rates for various oral sites in the population segment (45 years and older) subject to risk. The rates in men are: 18 for the lower lip; four for lateral margins of the tongue; three for the anterior floor of the mouth; two each for lower gingiva, buccal mucosa and remainder of tongue; and one each for the upper lip, upper gingiva and soft palate. The rates in women are: one each for the lower lip, tongue margins, remainder of the tongue, anterior floor of the mouth, lower gingiva and buccal mucosa.

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Effect of beechwood creosote and chloramine on periapical tissue of dogs

The author compares the irritation potential of beechwood creosote and chloramine-T used as root canal medicaments in dogs' teeth. Creosote, whose antiseptic value is due to its ability to coagulate albumen, caused inflammatory changes and occasional abscess formation in the periapical region. There was also evidence of undermining resorption of bone of the alveolar process. Chloramine, on the other hand, did not disturb the periapical tissue. The therapeutic value of treating infected root canals with irritant drugs, such as creosote, is questionable.

L'auteur compare la créosote de hêtre et la chloramine-T, quant à leurs effets irritants dans le traitement des canaux dentaires chez les chiens. La créosote dont la valeur antiseptique vient de sa propriété de coaguler l'albumine, a causé de l'inflammation et, dans certains cas, des abcès dans la région périapicale. On a observé également de la résorption de l'os du procès alvéolaire. Par contre, la chloramine n'affecte pas le tissu périapical. Le traitement thérapeutique de canaux dentaires infectés avec des médicaments irritants, tels que la créosote, semble d'une valeur douteuse.

Endodontic treatment supports restorative care by preserving essential teeth in the oral cavity. Its purpose is to control residual infection within the root canal and maintain the integrity of the periapical tissues. Although their efficacy has been disputed,^{1,2} endodontic medicaments are used on the assumption that they appreciably reduce bacterial activity. Drugs introduced into the root canal may, however, irritate the periapical tissue and complicate therapy. Blayney³ pointed out this hazard long ago when he observed that "much harm has been done to the

surrounding soft tissue by the use of coagulant drugs," and warned that "one must be mindful of their effects on the vital tissues."

Investigators, recognizing the irritating potential of the many drugs employed, developed several methods to study the problem. The procedures and materials used for this purpose have been reviewed by Torneck,⁴ Arefian⁵ and Attalla.⁶

Beechwood creosote was introduced to dentistry soon after its discovery by Reichenback in 1830. It has since been used as a sterilizing agent for carious

TABLE 1 Seven day effect of beechwood creosote on periapical tissue of dog's teeth.

Dog No.	Slide No.	Periapical response	Abscess formation	Apical bone resorption	Undermining bone resorption
2	785-12	+++	no	yes	yes
1	760-31	+++	yes	yes	yes
4	860-10	++	no	yes	no
3	837-3	+++	yes	yes	yes
2	787-15	+++	yes	yes	no
2	788-8	+++	yes	yes	yes
1	758-52	+++	yes	yes	yes
1	761-65	+++	no	yes	yes
3	838-18	+++	no	yes	no
1	759-68	+++	no	yes	yes

0—no irritation; †—minimal irritation; ††—mild irritation; †††—very irritating.

dentine and infected root canals. Creosote is a mixture of phenols and phenol derivatives, chiefly guaiacol and creosol, obtained from wood tar. Its antiseptic action is due to its ability to coagulate albumen.^{7,8} The drug was selected for this study because it has occupied such a prominent place in endodontics. The purpose of this investigation was to demonstrate the histological effect of creosote in the periapical area surrounding the teeth of young dogs.

EXPERIMENTAL PROCEDURE

Four young healthy dogs served as experimental animals. Beechwood creosote (Merck and Co. Inc., Rahway, New Jersey) was introduced into the canals of 10 teeth. A hypochlorite substance, chloramine-T (chloramine 134.4 Gm., sodium chloride 26 Gm., water 3,300 ml.), was introduced into the canals of seven other teeth for control comparisons.

The animals were weighed before each operation to determine the quantity of anaesthetic solution to be administered. The recommended dosage for profound anaesthesia was estimated at 10 mg. of sodium pentobarbital (Nembutal, Abbott Laboratories, North Chicago, Illinois) per pound of body weight. The anaesthetic solution was administered intravenously in the forelegs.

All possible measures were taken to simulate clinical conditions and eliminate possible infection that might mask the effect of the experimental drug. The instruments used were autoclaved and the rubber dam was applied in each case. The field of the operation was swabbed with 70 per cent alcohol.

Two to three millimetres of the occlusal surface of premolars and molars were reduced using seven-eighth inch diameter separating discs mounted on a straight handpiece revolving at 5,000 rpm. This was done to facilitate access to the pulp chamber in these blade shaped teeth. A

TABLE 2 Seven day effect of chloramine-T on periapical tissue of dogs.

Dog No.	Slide No.	Periapical response	Abscess formation	Apical bone resorption	Undermining bone resorption
3	841-8	†	no	no	no
4	862-5	†	no	no	no
4	861-12	0	no	no	no
3	840-5	†	no	no	no
3	838-1	0	no	no	no
2	786-12	†	no	no	no
4	859-4	††	yes	no	no

0—no irritation; †—minimal irritation; ††—mild irritation; †††—very irritating.

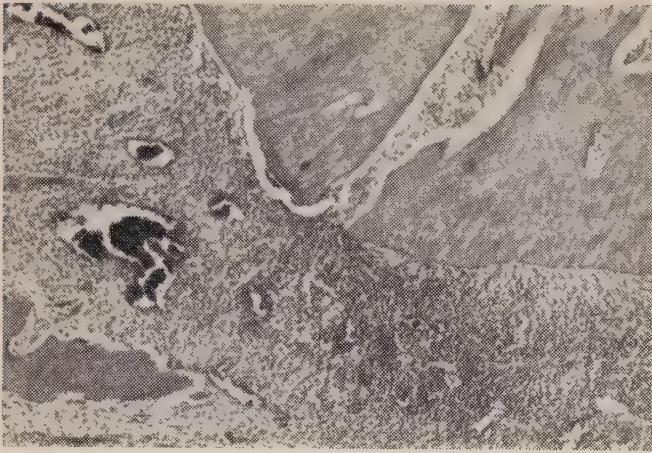


FIGURE 1 Photomicrograph of a root apex and surrounding structures. The tooth was treated with beechwood creosote for one week. Inflammatory cells are present in the apical periodontic tissue adjacent to the apical foramina. H.E. x250.

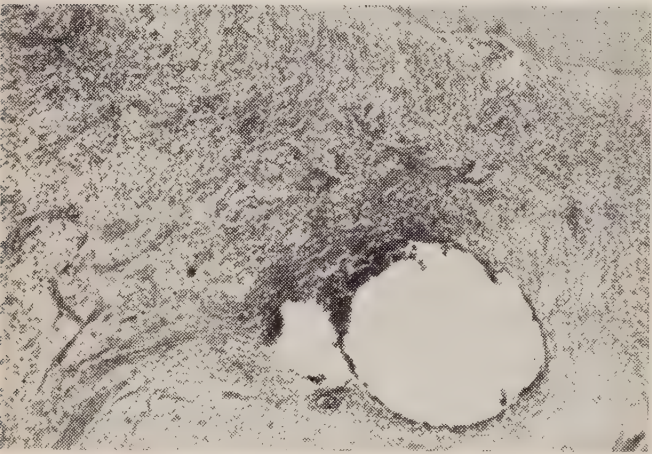


FIGURE 2 High power magnification photomicrograph of a root apex and surrounding structures. The tooth was treated with beechwood creosote for one week. Abscess formation is evident and there are inflammatory cells in the apical periodontic membrane. H.E. x250.

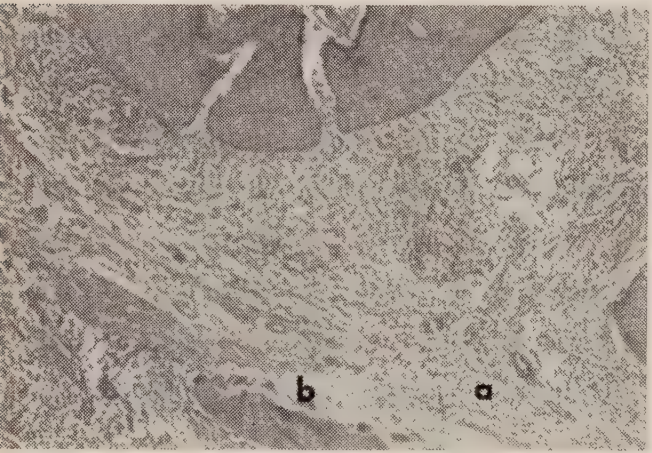


FIGURE 3 Photomicrograph of a root apex and surrounding structures. The tooth was treated with beechwood creosote for one week. Note inflammatory cells (a) and osteoclasts (b). H.E. x250.

557 steel fissure bur was used to outline the occlusal cavity. The cavity was deepened to the approximate level of the roof of the pulp chamber. The roof was then removed and a cotton pellet moistened with distilled water was placed over the exposed tissue.

The coronal pulp was extirpated with a long-shank spoon excavator and the orifices of the root canals were exposed. The pulp chamber was then cleaned of debris and a cotton pellet containing distilled water was placed over the amputated pulp to control haemorrhage.

Every effort was made to remove all the radicular pulp tissue at one time by passing a large barbed broach toward the end of the canal. Subsequent haemorrhage was again arrested with sterile cotton pellets and blunt end absorbent paper points moistened with distilled water. The root canals, pulp chamber and the cavity were finally dried with a series of cotton pellets and absorbent points without contacting apical tissue.

A large absorbent point moistened with creosote was inserted into the canals of 10 teeth. Excess drug was removed by squeezing the paper point between two portions of sterile gauze. The pulp chamber and the occlusal cavity were filled and sealed with zinc phosphate cement. Chloramine-T solution was applied in an identical manner in the canals of the control group.

The animals were sacrificed after seven days using an overdose of sodium pentobarbital solution. The lower jaw was dissected with a sharp scalpel to free the mandible from the soft tissue attachment on the buccal and lingual surfaces. The experimental teeth with the surrounding bone were cut away with an electrical saw and were immediately placed in a 10 per cent formalin solution for a minimum of two days' fixation. Decalcification was accomplished in 5 per cent nitric acid. Sections were embedded in paraffin and cut to seven microns, then stained with haematoxylin and eosin.

MICROSCOPIC OBSERVATIONS

The microscopic findings of this study are summarized in Tables 1 and 2. Creosote

sote caused a severe reaction in the periapical tissue. There was infiltration of inflammatory cells in the apical periodontic membrane (Figure 1) and an increase in collagen fibre bundles. Sixty per cent of the specimens from the area of inflammation demonstrated abscess formation (Figure 2). These abscess spaces contained pus which had washed away during processing of the specimens. In Figure 3 the bone of the apical portion of the alveolar process showed areas of resorption which contained loose connective tissue with some inflammatory cells. Osteoclasts present in Howship's lacunae lining the areas of resorption were indicative of active bone destruction. Seventy per cent of the specimens demonstrated osteoclastic activity in the adjacent bone marrow spaces (Figure 4).

Teeth treated with chloramine had normal periodontic tissue and few, if any, inflammatory cells (Figure 5). The bone of the apical portion of the alveolar process appeared to be normal; there was no evidence of resorption. There were no signs of inflammatory or osteoclastic activity in the medullary spaces adjacent to tooth apices. One section showed leucocytic cell infiltration in the periapical area with microscopic abscess formation. This may have been due to mechanical irritation during the operation.

DISCUSSION

The application of medicaments to root canals has been a recognized part of endodontic treatment since the end of the nineteenth century. The question of disinfection takes into consideration the nature of the infection, the properties of the disinfectant and the reaction of the tissues and organisms to the disinfectant. There is, as yet, no single ideal medicament for treating root canal infections. According to Stewart,⁹ the ideal root canal medicament should effectively eliminate or destroy micro-organisms without irritating healthy tissue. Disinfection is a double-edged sword because the toxic effect of the disinfectant upon micro-organisms is often countered by its toxic effect upon the host. The resultant damage may exceed the benefit derived from destruction of bacteria.

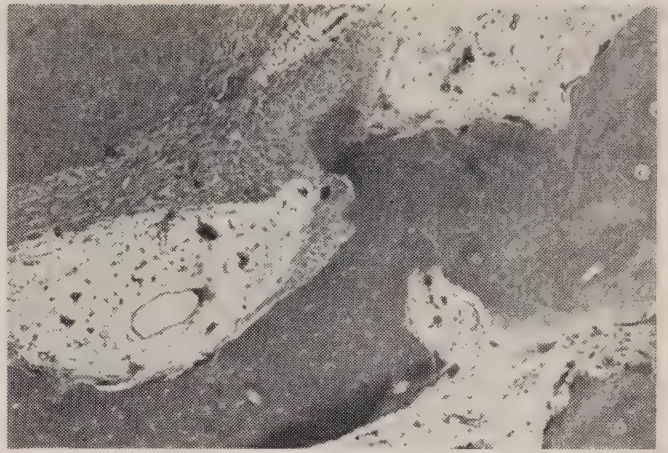


FIGURE 4 Photomicrograph of a root apex and surrounding structures. The tooth was treated with beechwood creosote for one week. There are osteoclasts in the marrow spaces. H.E. x250.

The microscopic findings of this study clearly demonstrate that creosote causes inflammatory changes in the periapical region. In some cases the centre of the inflamed area breaks down with resultant abscess formation. This indicates severe irritation on the part of the drug. The inflammatory effect is mainly confined to the periapical region adjacent to the apical foramina. This evidence of the self-limiting action of creosote is attributed to its property of coagulating albumen and corroborates findings by Boyle,¹⁰ Coolidge¹¹ and Arefian.⁵

Many specimens in this study exhibited osteoclastic activity in the adjacent bone marrow spaces. This resembled the microscopic appearance of undermining resorption of bone of the alveolar proc-

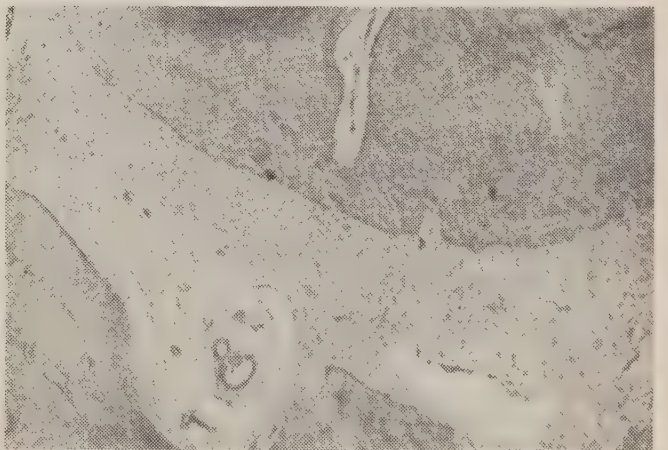


FIGURE 5 High magnification photomicrograph of a tooth treated with chloramine-T for one week. The periodontic membrane and bone of the alveolar process are normal. There is no sign of inflammation. H.E. x250.

ess. Sandstedt¹² was the first to name and explain the mechanics of this process. He showed how strong orthodontic forces can compress the periodontic membrane on the side that is subjected to pressure. Deprived of its vitality, the membrane cannot then resorb the bone of the alveolar process. Instead, active resorption begins in neighbouring marrow spaces. Bone and compressed soft tissue are thereby removed. Kemper¹³ obtained similar results by using high crowns that exert occlusal forces capable of inducing anoxia and hyalinization of the periodontic membrane. It is therefore obvious that excessive mechanical forces and chemical irritants produce the same histological result, especially if the irritation is severe enough to stimulate the bone marrow.

In this study chloramine produced very little, if any, departure from the normal histological appearance of the periapical region. This finding contrasts sharply with observations by other investigators^{11,14} who found that the drug caused severe inflammation. In fact, Boyle¹⁰ has reported that essential oils and chlorine preparations, that do not coagulate albumen, induce much more extensive and diffuse inflammation of the periapical tissues. The difference in findings is possibly due to the following factors: (1) the amount of the pulp remnant being variable, its retarding effect on the drug sealed in the canal may vary in proportion; (2) there may be disparity in the size of the canals and the number of apical foramina; (3) the amount of the drug used may differ slightly from one case to the next; (4) the reaction of living tissue to an irritant varies from one animal to another; and (5) the nature and type of the test method may differ, a histological study being more accurate than a clinical or radiographic study.

The necessity of eliminating micro-organisms from the root canal has been emphasized since the earliest days of endodontic therapy.^{15,16} Various drugs have been recommended for attaining successful results. Bacteriological culturing has been advocated for determining the degree of disinfection of the root canal.¹⁷ Some investigators, opposed to the sealing of irritant drugs in root canals, claimed success from the use of irrigat-

ing solutions alone. In fact, Auerbach¹⁸ demonstrated that 78 per cent of infected canals could be sterilized by careful mechanical cleansing and irrigation with hydrogen peroxide and sodium hypochlorite.

Recent investigators tried a different approach by studying the healing capacity of periapical tissue around canals which yielded a positive pre-obliteration culture. Clinical and radiographic studies by Seltzer¹⁹ and Grahnen²⁰ have shown that the pre-obliteration presence or absence of micro-organisms has little effect on the success or failure of the treatment. Matsumiya and Kitamura²¹ observed that the presence of micro-organisms in the root canal does not impair the periapical healing of endodontically treated dogs' teeth. They showed that bacteria tend to die in time and that attempts at sterilization were fruitless. Seltzer et al²² undertook a further histological evaluation of periapical repair following positive and negative root canal cultures in dogs' teeth. From this they concluded that: (1) there is no significant difference in repair between the two groups; and (2) severe inflammatory responses occur as a result of mechanical irritation such as over-filled root canals or particles of root canal cement forced into the periapical periodontic membrane.

A principal aim of endodontic treatment is to encourage repair of the periapical tissue by the body's natural defences. This is mainly achieved by removing necrotic pulp tissue, organic debris and excessive micro-organisms. It is therefore imperative to avoid irritating chemicals or unsound techniques which may lower the healing capacity of tissue. Cahn²³ summarized this when he stated, "The few bacteria that may remain in the canal will die if all organic material is removed. The few that may have been pushed inadvertently through the apical foramen will be destroyed and removed by the defence cells."

SUMMARY AND CONCLUSION

The irritation potential of root canal medicaments has been a source of concern since the time of G. V. Black. The

bactericidal quality of disinfectants is frequently offset by their toxic effect upon the host.

This investigation was intended to determine whether beechwood creosote is compatible with living connective tissue. Chloramine-T served as the control drug. Ten dogs' teeth treated with creosote were compared to seven dogs' teeth treated with chloramine-T. All instruments were autoclaved and rubber dam was used throughout in order to simulate clinical conditions and avoid possible infection that might mask the effects of the experimental drugs. The drugs were inserted on absorbent paper points in the root canals. Following the test period of seven days histological sections were prepared and studied.

Beechwood creosote caused localized inflammatory changes and occasional abscess formation in the periapical region. An undermining resorption of bone of the alveolar process was also observed. This may have been provoked by drug irritation of the periodontic membrane. Chloramine-T, on the other hand, did not disturb the normal histological appearance of the periapical tissue. There is a popular belief that anticoagulant drugs, such as essential oils or hypochlorite preparations, precipitate more severe and diffuse inflammation than coagulants, like creosote. This study, however, produced only one case of mild inflammatory response to chloramine. The therapeutic value of treating infected root canals with irritant disinfectants, such as creosote, is therefore questionable.

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Orthodontic treatment of the newborn with clefts of the lip and palate

The author describes an intra-oral appliance for infants with clefts of the lip and palate. The appliance maintains maxillary arch relationship during the immediate post-natal period until closure of the palate has been achieved by surgery. This method has been successfully used at the Montreal Children's Hospital since 1960.

L'auteur décrit un dispositif intrabuccal pour les bébés souffrant d'une fissure de la lèvre et du palais. Le dispositif maintient en place l'arcade maxillaire pendant la période immédiatement postnatale, jusqu'à ce que la voûte du palais puisse être fermée chirurgicalement. Cette méthode a été employée avec succès depuis 1960, au Montreal Children's Hospital.

In 1960 at the Montreal Children's Hospital an attempt was made to improve the maxillary arch relationship of children with clefts of the lip and palate. Previously, the usual time for surgical closure of the lip occurred when the infant weighed 10 pounds and could well withstand a general anaesthetic. Closure of the palate followed at 18 months. That year our cleft palate unit began to test an intra-oral appliance designed to maintain or enhance arch relationship before the child undergoes lip and palate surgery. The appliance was similar to that described by McNeil¹ of Glasgow who used it to reposition the palatal segments in children with cleft lip and palate.

The moulding of skeletal bone itself is not new. For example, five days after birth the Panoans of the Montana peoples used to strap boards on the heads of their infants to mound flat broad heads. Yet initially (1954), McNeil's technique generated a great deal of controversy over the repositioning or moulding of palatal segments in infants with clefts of the palate. There was particular disagreement over the question of whether or not tissue stimulation diminishes the palatal

cleft and induces the formation of new palatal bone. McNeil considers the latter unimportant as long as the cleft is reduced. He has, however, demonstrated to his own satisfaction, that new bone is actually formed in some instances.

Four years later Burston² of Liverpool, who is an embryologist as well as an orthodontist, presented further information on this subject. He demonstrated excellent results and explained the embryological factors involved. McNeil and Burston stimulated much interest in Europe and America and prompted us to undertake a study at the Montreal Children's Hospital.

Attempts to introduce an intra-oral appliance in infants with clefts met with varying degrees of success, depending largely on the age at which the appliance was inserted. The greatest success was achieved when the appliance was inserted immediately after birth. In this we followed the method outlined by Ritchie³ of the Westminster Hospital, London, who constructs a preliminary feeding plate. Additional advantages became evident as the study progressed.

The appliance permits the alveolar

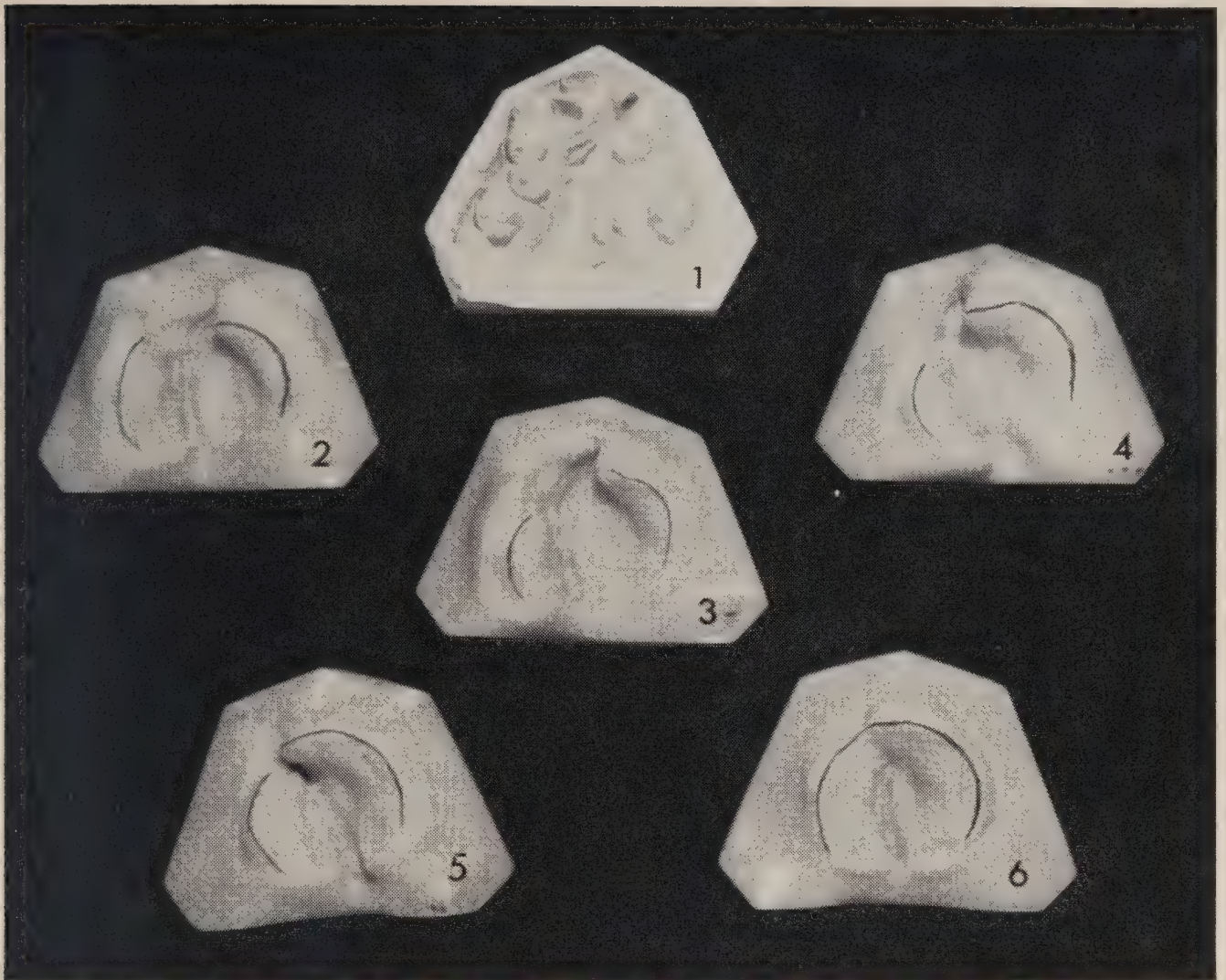


FIGURE 1 (1) Complete unilateral cleft of the lip and palate with no orthodontic treatment. (2) Complete unilateral cleft of the lip and palate at birth. An appliance was inserted prior to the first feeding. (3) Same case at one week of age. (4) Same case at three months, prior to lip closure. (5) Same case one week after lip closure. (6) Same case at seven months. Note the size of the palatal cleft and approximation of palatal segments. Bone grafting is not required.

ridges with their rapidly developing teeth to flow, as it were, along a channel in the appliance. The channel guides this surge of growth in the direction desired for a more normal relationship between the maxilla and the contiguous tissues. This has a decided advantage since it provides a symmetrical arch over which the plastic surgeon can drape the lip (Figure 1).

We found that the tongue plays a most important role. In the first place, it fills the mouth at birth so that no extra-oral devices are required for retention. Secondly, the appliance, inserted post-partum and prior to the first feeding, is readily accepted by the tongue as part of the environment. Further, the appliance prevents the tongue from entering the cleft and assuming its foetal position between

the palatal shelves, thus permitting growth toward the midline.⁴ Pressure of the tongue on the appliance aids in stimulating the moulding action of the appliance. The tongue, kept by the geniohyoglossus muscle in its normal position, is better able to maintain a normal pharyngeal airway.⁵

Coincidentally, the artificial closing of the palate helps to prevent food from entering the anterior nasal cavity. This reduces nasal irritation and discharge and quite possibly helps to diminish irritation at the orifices of the Eustachian tubes. While the appliance is not intended as a feeding aid, it does make it easier for some infants to 'milk' the bottle nipple against the artificial palate. Actually, one mother breast-fed her child with a complete unilateral cleft of the lip and palate

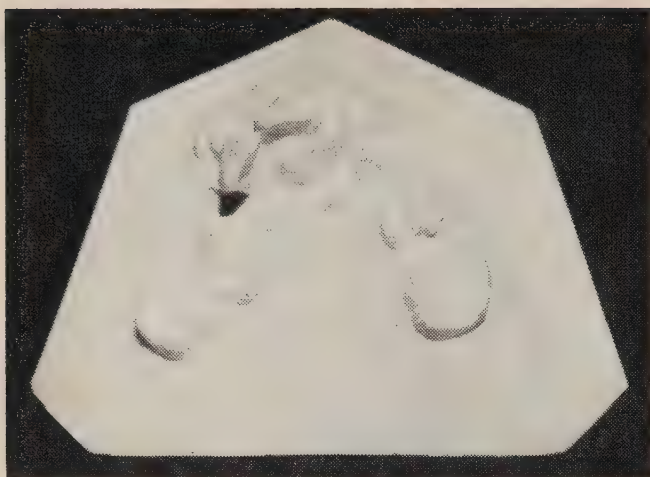


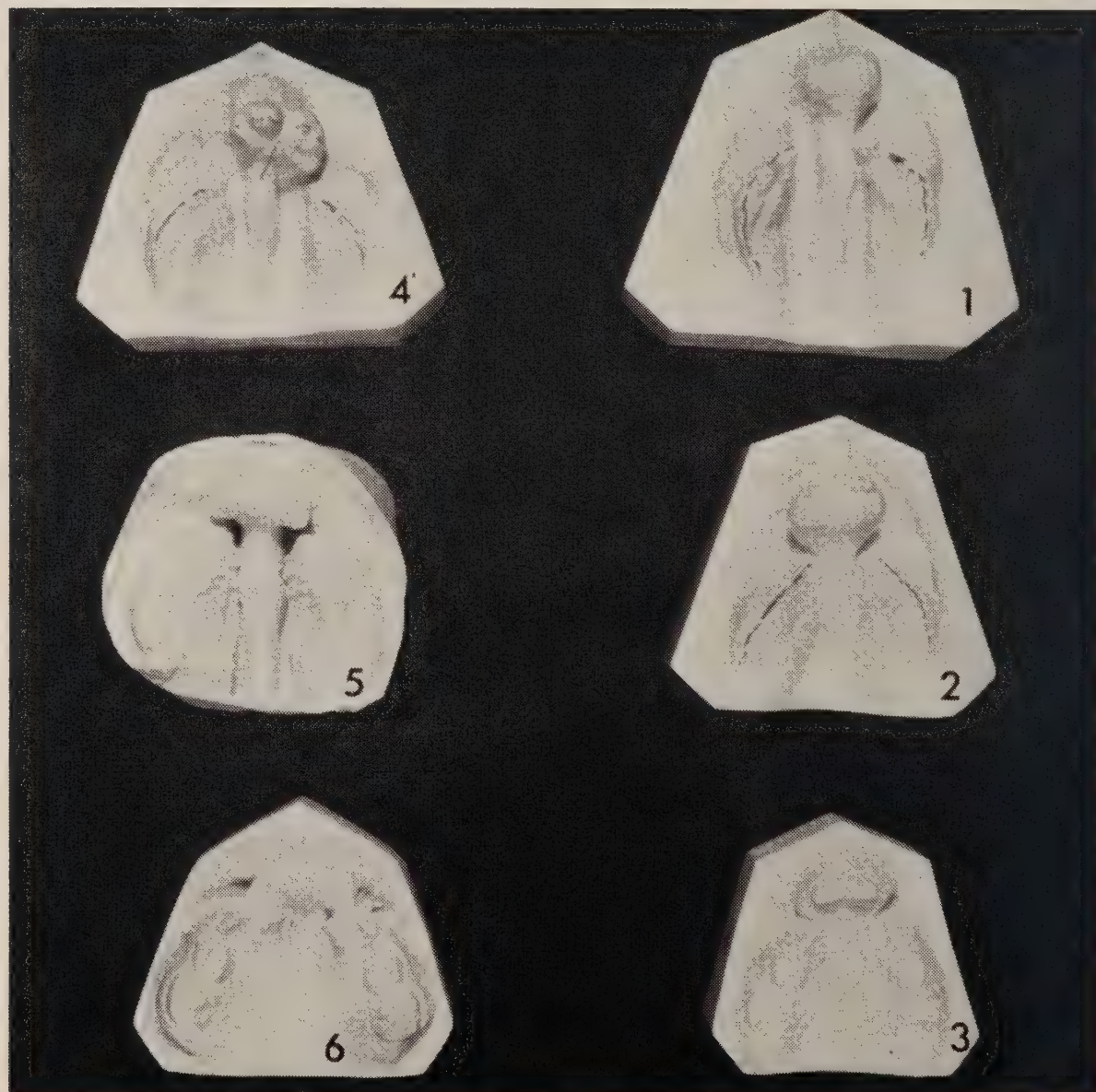
FIGURE 2 Complete bilateral cleft of the lip and palate untreated in infancy, showing collapse of palatal segments with rotation and canting of the premaxilla.

for five days to ensure colostrum intake. This illustrates the ready acceptance of the appliance by both mother and infant.

One of the least expected advantages has been the alleviation of maternal psychic trauma. Here is something concrete being done for her infant in which the mother actively participates; like other mothers she feeds the child in her room and leaves the hospital with her baby at the same time as do the mothers of normal infants. Our experience with premature infants has convinced us that an appliance should be inserted as soon as sucking movements begin.

Need for the appliance varies with the individual child, depending on the sever-

FIGURE 3 (1) Complete bilateral cleft of the lip and palate at birth. (2) Same case at age seven months, with no treatment other than lip closure. Note collapse of the palatal segments behind the premaxilla. (3) Expansion of arch in the deciduous dentition. (4) Complete bilateral cleft of the lip and palate at birth. An appliance was inserted within six hours and the tooth buds were removed. (5) Same case at seven months, following lip surgery. A palatal appliance was worn constantly. Note the thickening of the vomer and reduction in the size of the cleft without sacrificing arch width. (6) No expansion or bone grafting are necessary. Occlusion of dentition is shown in Figure 4.



ity of the cleft and on the inherent facial pattern on which the cleft is superimposed. A dolicocephalic, thus, differs from a brachycephalic child. The inherent skeletal facial profile together with the inherent musculature can be detrimental or favourable. Additionally, a procumbent or retracted maxilla, short tight lips or large copious lips, and small or large oral orifices can influence the attainment of a pleasing appearance.

Many normal children exhibit disharmony between the size of the teeth and the size of the jaws. Such disharmony occurs also in children with palatal clefts where it is an added complication. For example, inherent large permanent incisors in a hypoplastic maxilla, in conjunction with a complete bilateral cleft of the lip and palate, produce a more severe malocclusion than that of a child destined to have a large broad maxilla with small teeth.

We have found that the premaxilla is not blocked out at birth by the palatal segments in infants with complete bilateral clefts of the lip and palate. Instead, these segments collapse behind the premaxilla if arch width is not maintained

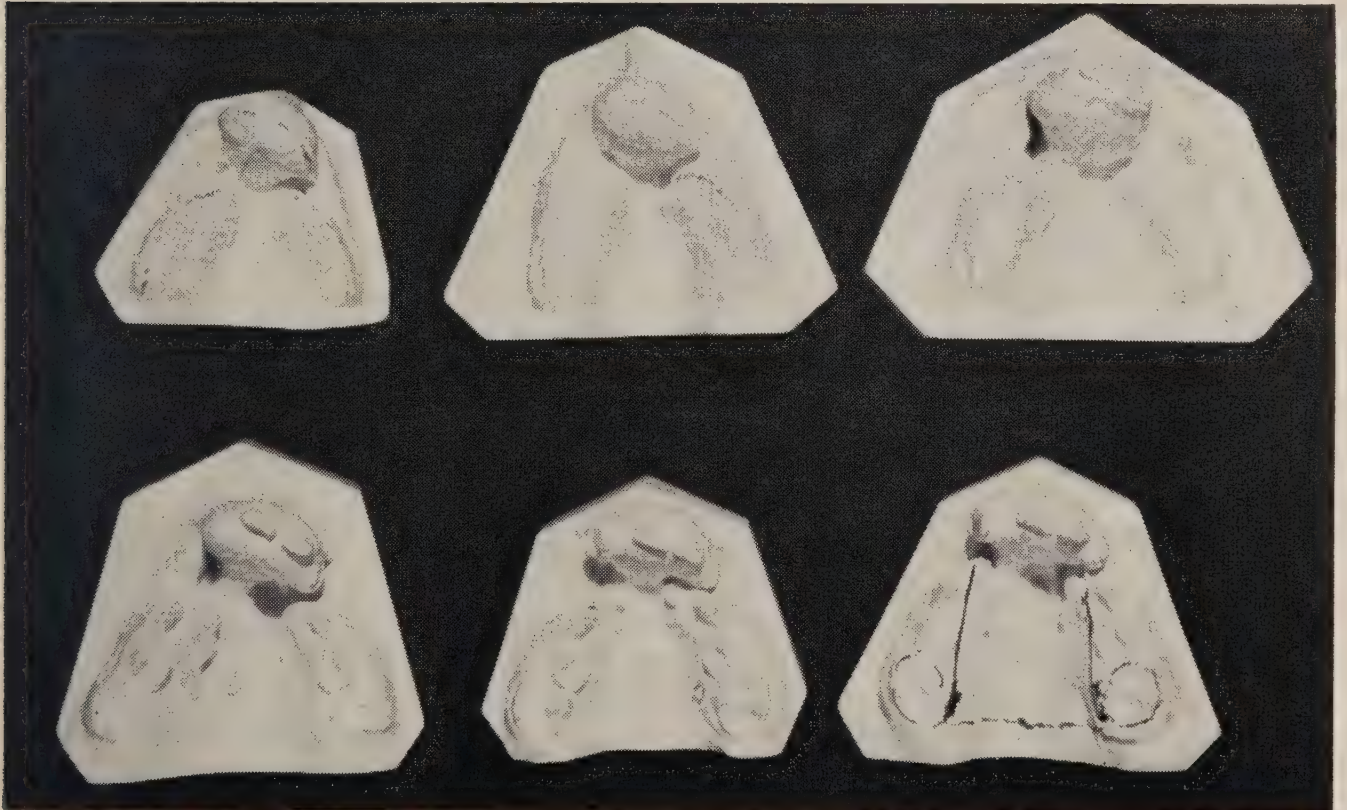


FIGURE 4 Casts illustrating the occlusion of the case depicted in Figure 3 (6).

(Figures 2-4). Consequently, an expansion appliance is required when the baby has not received continuous treatment from the day of birth (Figure 5).

We are indebted to Dreyer⁶ of the University of Witwatersrand, South Africa, for his description of a cupola-like device which fits the premaxilla. The device is attached to an appliance

FIGURE 5 Collapse of palatal segments of a child who has had lip closure. These segments were expanded and held until the deciduous teeth erupted. At this time the arch again collapsed, but not as much as previously. On full eruption of the second deciduous molars the arch was again expanded with very little effort.



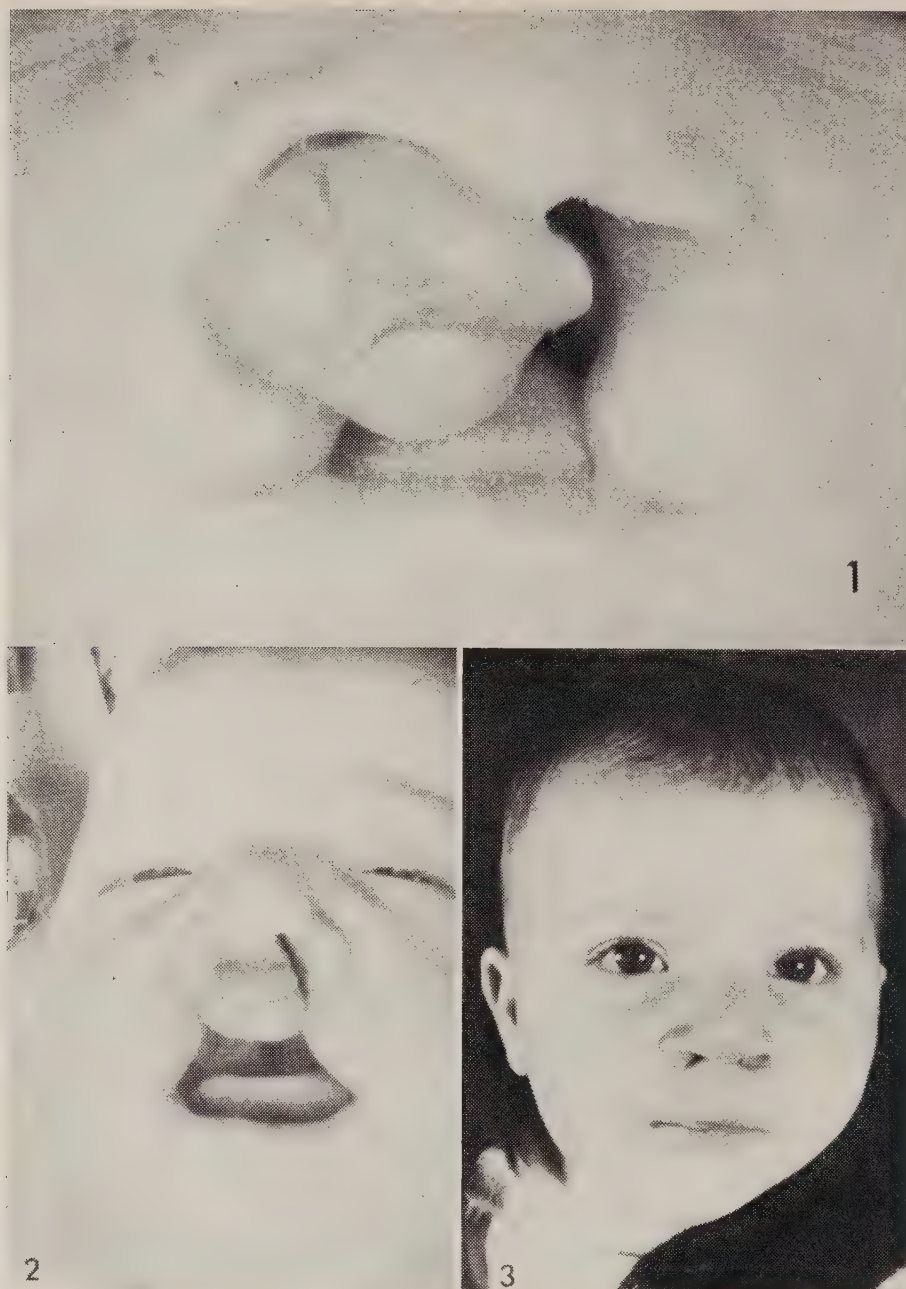


FIGURE 6 (1) Complete bilateral cleft of the lip and palate. Note rotation and cant of premaxilla. (2) Same patient before lip surgery. Note that the premaxilla is now centered. (3) After the lip and palate were repaired.

and further aids in repositioning the premaxilla (Figure 6).

CONCLUSION

There have been and there will continue to be excellent results in children with palatal clefts where no orthodontic treatment is given. Some of these results may be due to favourable inherent growth patterns. Our clinical experience indicates that orthodontic treatment enhances the likelihood of success. We believe this is sufficient justification for

routine orthodontic treatment of the newborn with clefts of the lip and palate.

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1414 Drummond Street

**Dental
birthday
cards
for
three
year
old
children**



FIGURE 1

Alan S. Gray,* DDS, DDPH, Kelowna, BC

Birthday cards mailed to three year old preschool children in two British Columbia school districts induced two-thirds of the recipients to seek appointments with family dentists. The provincial health department paid for examination and counselling as well as topical fluoride applications in one of the districts. Parents had to pay for any other treatment required. Recall appointments offered participants in one of the districts were kept by three-quarters of the subjects. The availability of free fluoride applications did not increase participation; the quality and quantity of promotion and follow-up were more important in this respect.

Les cartes-anniversaire envoyées dans deux districts scolaires de la Colombie britannique, aux enfants de trois ans, qui ne vont pas encore à l'école, ont incité deux tiers des parents des destinataires à prendre rendez-vous avec leur dentiste de famille. Le Ministère provincial de la santé a payé, dans l'un des districts, pour l'examen et les conseils, ainsi que pour les applications topiques de fluorure. Les parents devaient payer eux-mêmes pour tous les autres traitements qui s'avéraient nécessaires. Des rendez-vous de rappel offerts aux participants, dans l'un des districts, ont été respectés par les trois-quarts des sujets. Le fait que les applications de fluorure étaient gratuites, n'a pas eu d'effet sur la participation. Le nombre des invitations et la façon dont elles ont été faites ont eu un plus grand effet à cet égard.

Dental public health programs beginning at school entrance are too late to prevent the premature extractions and large cavities that occur in deciduous teeth of preschool children.¹ Also, many parents become careless about their children's dental health habits during the preschool years.²

Unfortunately, most dental public health programs overlook the preschool population.³ Two notable exceptions are the Riverdale project in Toronto⁴ where dental hygienists give comprehensive personal service to preschool children, and the three year old reminder letter program which originated in California.⁵ The latter informed and urged parents to initiate regular dental treatment by age three. This program was hard to evaluate, although its proponents claimed success on the basis of the 22 per cent of parents who acknowledged receipt of the greeting. A similar program in British Columbia encountered the same evaluation difficulty, with an estimated 20 per cent acknowledgement response.

METHOD

In September 1964, after consultation between the Division of Preventive Dentistry, British Columbia Health Branch, and the British Columbia Dental Association, we initiated pilot birthday card pro-

grams for three year-olds in Kelowna, Kamloops and five other communities. Cards (Figure 1) have since been mailed to applicable children during the month of their third birthday. On presentation to the family dentist, the card entitles the holder to the following services without direct charge: dental examination, any necessary radiographs, dental health counselling, treatment planning, home care instruction for the parent, and a topical fluoride application if considered advisable. Appropriate fees for these services, previously negotiated between the profession and provincial and local authorities, are paid by the British Columbia Health Branch. Also included in some localities is a small fee for making a recall appointment six months or a year later. The parents are responsible for any other needed dental service.

The dentist records on the birthday card (Figure 2) the services provided and fees claimed, and whether or not the parents accept any recommended dental treatment for the child. The cards are then returned to the local health unit for processing and payment. Each card is valid at any time before the child's fourth birthday, and the recall appointment must be made within a year's time. This means that the child is seen once during his third year and again in his fourth year.

Dental assistants in each health unit make a follow-up four months after each

FOR THE FAMILY DENTIST

Services provided to _____
before his/her fourth birthday

(day) (month) (year)

Check

E. & C. _____
X-R _____
T. F. _____
NTR _____
TA _____
TNA _____
RA _____

Fee _____
D.D.S./D.M.D. Claimed \$ _____

Please complete and return to Health Unit office.

FIGURE 2

card is mailed. This consists of a telephone call or, when parents cannot be reached directly, a personal letter urging their participation.

RESULTS

Kelowna and School District 23. — Approximately half the children of this school district reside in Kelowna, a city of about 15,000. The rest live on orchards and in small rural centres. In the first year of the program (1964-65) there were 683 grade 1 children in District 23, but health unit records listed only 564 three year old children in this district. Of these, 373 (66 per cent) used the birthday card. A further 22 children (4 per cent) had already attended the dentist before receipt of the card. Thus 395 children (70 per cent of the three year old children with health unit records) received dental supervision that year (Table 1).

At the first appointment 103 children (28 per cent) needed dental care. All but 12 children accepted this treatment. The latter represent 3 per cent of the participants or about 10 per cent of those needing treatment.

Recall appointments were made for 372 children. These were kept by 298 (78 per cent) children. Family moves accounted for many cancelled recall appointments.

Most local dentists in this district levied a private fee for any topical fluoride applications given. Applications for only 11 children were charged to the Health Branch. The number of applications given privately is not known.

The agreed fees were \$5 for the examination and counselling, \$5 for topical fluoride application and \$2 for making the recall appointment. The total cost for this district was \$2,666 (\$1,865 for the examination and counselling, \$746 for recall appointments and \$55 for topical fluoride applications).

Kamloops and School District 24. — This school district, which is mainly urban in character, has 970 grade 1 children. In the first year 804 eligible three year-olds were found in health unit records. Of these, 507 children (63 per cent) used the birthday card. A further 32 children (4 per cent) already attended the dentist before receipt of the card. Thus 539 children (67 per cent of the children with health unit records) received dental supervision that year (Table 1.)

At the first appointment 107 children (20 per cent) needed fillings. All but 24 accepted this treatment. The latter represent 5 per cent of the participants or 22 per cent of those needing treatment.

No recall appointments were made in this district, but topical fluoride applications were promoted through the birthday card and paid for by the Health Branch. Two hundred and seventy-two, or 53 per cent of the 507 children who used the card, received this preventive treatment.

Fees in this district paralleled those in District 23, but there was no payment for recall appointments. The total cost in this district was \$3,895 (\$2,535 for examination and counselling and \$1,360 for topical fluoride applications).

TABLE 1 Results of dental birthday card program.

	Kelowna		Kamloops	
Known preschool children	564		804	
Children who used card	373	66%	507	63%
Children who already had a dentist	22	4%	32	4%
Total children under supervision	395	70%	539	67%
Needed dental care	103	28%	107	20%
Refused dental care	12	3%	24	5%
Examinations	\$1,865		\$2,535	
Recall appointments	746			
Fluoride applications	55		1,360	
Total cost	\$2,666		\$3,895	
Possible cost per child	\$ 7.00		\$10.00	

DISCUSSION

About 50 per cent of the participants were motivated by the cards alone, a further 35 per cent by the follow-up telephone call, and another 15 per cent by the follow-up letter. Though concurrent mass media advertising contributed to these results, the personal follow-up proved to be the most important factor in gaining participation.

It is debatable whether the Kamloops program, at a possible (not actual) cost of \$10 per child and offering one topical fluoride application but no recall appointment, was more effective than the Kelowna program, at a possible cost of \$7 per child, where there were few fluoride applications but children were seen twice by a dentist during preschool years. Perhaps the simplest resolution of this question is to include a topical fluoride application and a recall appointment in the program. Where cost is a factor, the examination and recall appointment alone still make an effective public health program.

The success of these two pilot programs persuaded us to add seven more the following year (1965-66). There were 19 of these programs in British Columbia by the end of 1966, and a further 16 programs were being developed last year.

CONCLUSIONS

The three year old birthday card program can persuade the majority (67-70

per cent) of preschool children to visit a dentist at least twice before they commence school. The only disadvantage is that health unit files cannot provide a complete list of preschool children in the area. Any program is affected by the transience of the population served. However, extensive and continuous publicity assists in overcoming this problem. 'Free' fluoride applications are not necessary for obtaining high participation rates; the amount and quality of the promotion and follow-up are more important to the final result. Areas for the introduction of such programs must be carefully selected, making certain that adequate dental care services are available for preschool children.

*Regional dental consultant, British Columbia Health Branch.

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Erratum • The rainbow stanza, "My heart leaps up when I behold / A rainbow in the sky / So was it when my life began / So is it now I am a man / So be it when I shall grow old / Or let me die;" quoted in Dr. T. J. Harrop's article, "The Challenge," in the February Journal, was incorrectly attributed to John Keats. The author was William Wordsworth.

Mechanisms of antimicrobial defence

Local and general defences protect the body against the threat of bacterial invasion. Local defences include (1) non-specific factors that operate on body surfaces (temperature, organic secretions, cell desquamation, ciliary movement and indigenous bacterial flora); (2) inflammatory exudate; (3) phagocytosis by leucocytes; (4) possible extracellular secretion of antibacterial substances by host defensive cells; and (5) the immunity exhibited by certain organs to specific pathogens. General defences include (1) phagocytosis by fixed elements of the reticulo-endothelial system and (2) the opsonizing and lytic powers of the serum. The role of these factors in the causation and resistance to caries and to pulpal and periodontic disease is obscure.

Des mécanismes de défense locaux et généraux protègent le corps contre le danger d'une invasion bactérienne. Les défenses locales comprennent: des facteurs non-spécifiques qui opèrent à la surface du corps (température, sécrétions organiques, desquamation des cellules, mouvement ciliaire et flore microbienne indigène); (2) l'exsudat inflammatoire; (3) la phagocytose par leucocytes; (4) la sécrétion extra cellulaire éventuelle de substances antibactériennes par certains organes réagissant à des agents pathogènes donnés. Les défenses générales comprennent: (1) la phagocytose par éléments fixes du système réticulo-endothélial et (2) les propriétés opsonisantes et lytiques du sérum. Le rôle causal et anticaries que jouent ces facteurs est obscur ainsi que leurs rapports avec les maladies pulpaires et périodontiques.

Very little is known about how micro-organisms inflict damage on pulpal and periodontic tissues. Their precise role in the caries process is equally obscure. Host resistance must also play a part if bacterial influences are essential to the causation of disease in these tissues. The host's reaction may determine the eventuality of disease or the intensity of pathological processes. The purpose of this article is to focus attention on factors which tend to preserve homoeostasis in the face of microbial infection. It remains for future investigators to relate these interactions to the mouth.

The body is constantly threatened by

bacterial invasion. Survival depends on the defensive qualities of antibodies, phagocytes and other non-specific factors, some of which are entirely separate from the host *per se*.

A potential pathogen can act at three levels: (1) Bacteria may proliferate in localized areas (skin, mucous membranes) and cause injury confined to the site of infection. This is exemplified by a carbuncle. (2) Bacteria may directly or indirectly enter the bloodstream where they are disseminated throughout the body. This is exemplified by anthrax. (3) Bacteria may remain at a localized site and elaborate metabolites which injure distant

target tissues. This is exemplified by diphtheria and tetanus.

LOCAL DEFENCE

Unhindered, any potential pathogen could readily penetrate a body surface, multiply at a localized site and eventually kill the host after proliferating in the circulatory system. But, fortunately, bacteria encounter on external body surfaces several non-specific factors which discourage the establishment of bacterial infection. The temperature, for example, may inhibit microbial growth. Organic secretions such as fatty acids on the skin, saliva in the oral cavity, mucoid secretions in the respiratory tract, and acid or alkaline secretions in the gastro-intestinal tract may likewise check certain parasites. Desquamation of surface cells, ciliary movement, and the passage of materials as in swallowing tend to remove bacteria before they become firmly established. Resident or indigenous bacterial flora may also preclude the establishment of an exogenous infection. Here, the commensal organisms may elaborate certain antibacterial factors or compete with the foreigner for nutrients.¹

Penetration of the surface barrier most commonly proceeds via a defect or break in the epithelial mantle. The penetrant may consist of bacterial metabolites or organisms, either of which may diffuse into underlying tissues to create disease.

The inflammatory response is the major mechanism whereby the host actively combats infection at the local level. This takes the form of a complex series of interwoven cellular and humoral changes. One of the earliest changes is an alteration in the permeability of venular and capillary endothelia, resulting in an outpouring of plasma into the extravascular spaces.² This plasma may dilute toxins and provide antibodies which can react with specific micro-organisms or their metabolites. In the past much has been made of the so-called fibrin barrier as a mechanical obstruction to the progress of bacterial dissemination, but its role is currently being re-evaluated.³

Studies on experimental skin infections

have shown that the issue between bacterial containment or dissemination is decided within the first four hours of infection. During this critical period host resistance can be diminished by certain kinds of local or systemic stress.³ These include pressure applied to the infected area⁴ or adrenaline injected *in situ*, both of which reduce the amount of plasma and white blood cells reaching the area. The same is true of transient systemic shock where there is a compromise in peripheral circulation.³

Intracellular Defence. — Phagocytic cells play a cardinal role in determining the outcome of microbial infection. Metchnikoff⁶ was the first to implicate neutrophilic and monocytic cells in host defence. He envisaged these elements, especially the polymorphonuclear neutrophils, as a 'mobile army' of cells which 'hurl themselves' against the invaders. Margination of white cells in the micro-circulation occurs shortly after bacteria are introduced into the skin. Electronmicroscopic studies show that these cells extend a pseudopod which dissects the junction between endothelial cells of venules.⁷ The leucocyte then passes through the junction and appears outside the bloodstream. The role of chemotactic factors in attracting leucocytes to the infected tissues has been described by Harris.⁸

When neutrophils or monocytic macrophages engulf bacteria, the ingested particles are contained in a membrane-bound pouch called a 'phagocytic vacuole'.^{9,10} We have known for more than 70 years that bacterial kill occurs within these lacunae, but the mechanism of this phenomenon was hitherto obscure. We now credit lysosomes with a major role in this process.

In 1955 de Duve et al¹¹ reported that certain cytoplasmic organelles in rat liver cells contained a battery of hydrolytic enzymes capable of degrading various substrates, including proteins. These particles were named lysosomes (lytic bodies). The authors observed that the membrane of lysosomes ordinarily separated the contained enzymes from potential substrates, thereby preventing digestion of the components of the cell.¹² But when the membrane leaked, the enzymes

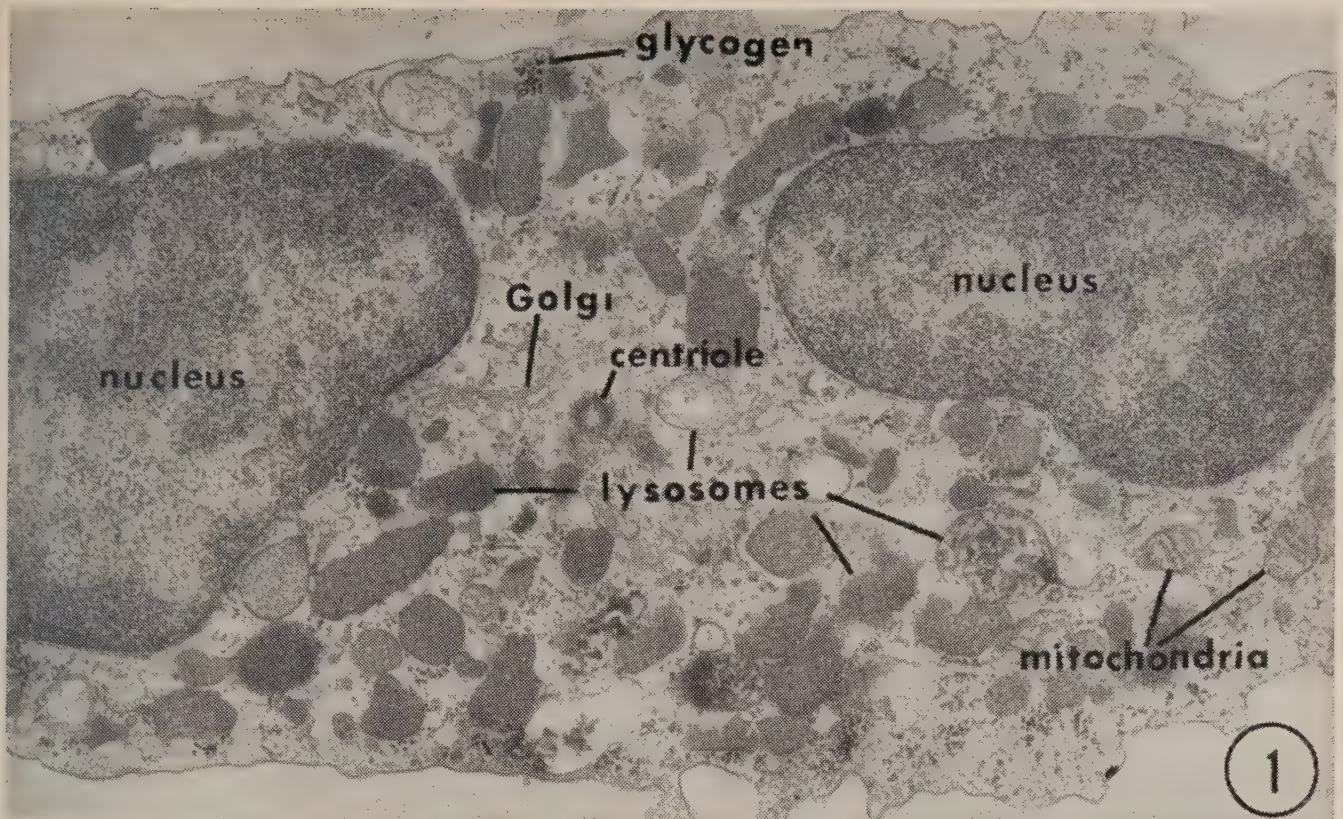


FIGURE 1 Electronmicrograph of a rabbit neutrophil. The cell has emigrated out of the bloodstream and forms part of an inflammatory exudate. Note the presence of numerous electron-dense granules or lysosomes in the cytoplasm. x15,640

could diffuse out of the lysosome and induce autodigestion. De Duve et al also noted that these enzymes act most efficiently at low pH. Lysosomes have since been found and isolated in many different mammalian cells and implicated in innumerable physiological and pathological processes.^{13,14} In 1960 Cohn and Hirsch¹⁵ found that neutrophils contained lysosomes (Figure 1). Cohn and Wiener¹⁶ subsequently showed that macrophages also have lysosomes. The constituents of the organelles in these cells are lipases, proteases, ribonucleases, saccharidases, cationic proteins, lysozyme and fatty acids.

Now to return to the question of bacterial kill. Lysosomes of neutrophils observed in culture by phase contrast cinematography demonstrate Brownian motion.¹⁷ When these lysosomes contact other resident organelles, such as mitochondria, they bounce off these particles. But when a lysosome collides with a phagocytic vacuole the membranes of both structures fuse and the content of the lysosome is discharged into the vacuole (which is then sometimes called a 'digestive vacuole').^{9,10} Continuing bom-

bardment of the vacuole by lysosomes results in the eventual degranulation of the leucocyte cell (Figure 2). If they are susceptible to such antibacterial factors as lysozyme, phagocytin and basic polypeptides, the micro-organisms are destroyed. Lysozyme is an enzyme which can lyse certain bacteria by attacking cell wall mucopeptides.¹⁸ The mechanism of action of cationic proteins is not fully understood. Perhaps these agents act on the cytoplasmic membranes of susceptible bacteria, thereby destroying the osmotic barrier.¹⁹ On the other hand, resistant bacteria like tubercle bacilli are unaffected by their transient abode within the leucocyte and are eventually released when the cell dies to continue the infectious process. Moreover, certain microbial invaders elaborate cytophilic toxins like streptolysins and leucocidin which can actually destroy the phagocytic cell.¹⁸

Phagocytosis requires the expenditure of energy by neutrophils and macrophages. This is obtained through glycolytic degradation of glucose and stored glycogen.²⁰ Glycolysis proceeds under aerobic or anaerobic conditions. In either event lactic acid is generated, thereby

raising the intracellular hydrogen ion concentration. Thus, the pH requirements for optimal activity of lysosomal constituents are fulfilled.

Phagocytosis is aided by opsonic factors derived from serum proteins. These appear to coat bacteria and alter conditions on the surfaces of parasites.¹⁸ Phagocytosis is still more effective when cells can trap the invader against a tissue surface.²¹ This is termed surface phagocytosis, a phenomenon which occurs even when there is no opsonization. Examples are seen in fibrinous exudates where the fibrin mesh entraps bacteria. A similar effect derives from the intricate network of pulmonary alveoli or collagen fibres of the skin. By contrast, the relatively smooth lining of the peritoneum offers little chance for surface phagocytosis.²²

Extracellular Defence. — This refers to the capability whereby host defensive cells secrete antibacterial substances into the intercellular environment. It is

analogous to the degranulation and histamine release by mast cells. This possibility is raised by the experiments of Cromartie et al²³ who correlated guinea pig resistance to infection by anthrax bacilli with such a phenomenon. Recent ultrastructural studies by Freedman et al²⁴ show that phagocytosis is rare in gingival tissues obtained from patients with chronic periodontic disease. Here, degranulation by neutrophils is associated with the extracellular discharge of lysosomes. Whether this reflects an antibacterial effect on the microbiota of the gingival crevice remains to be seen.

Organ Immunity. — There is one other form of local defence with tremendous theoretical importance, but of which relatively little is known. This is 'organ immunity', best illustrated by guinea pigs where every organ, save the kidney, may be infected by tubercle bacilli. Renal tissue apparently contains a specific anti-tuberculin factor, spermine, which pre-

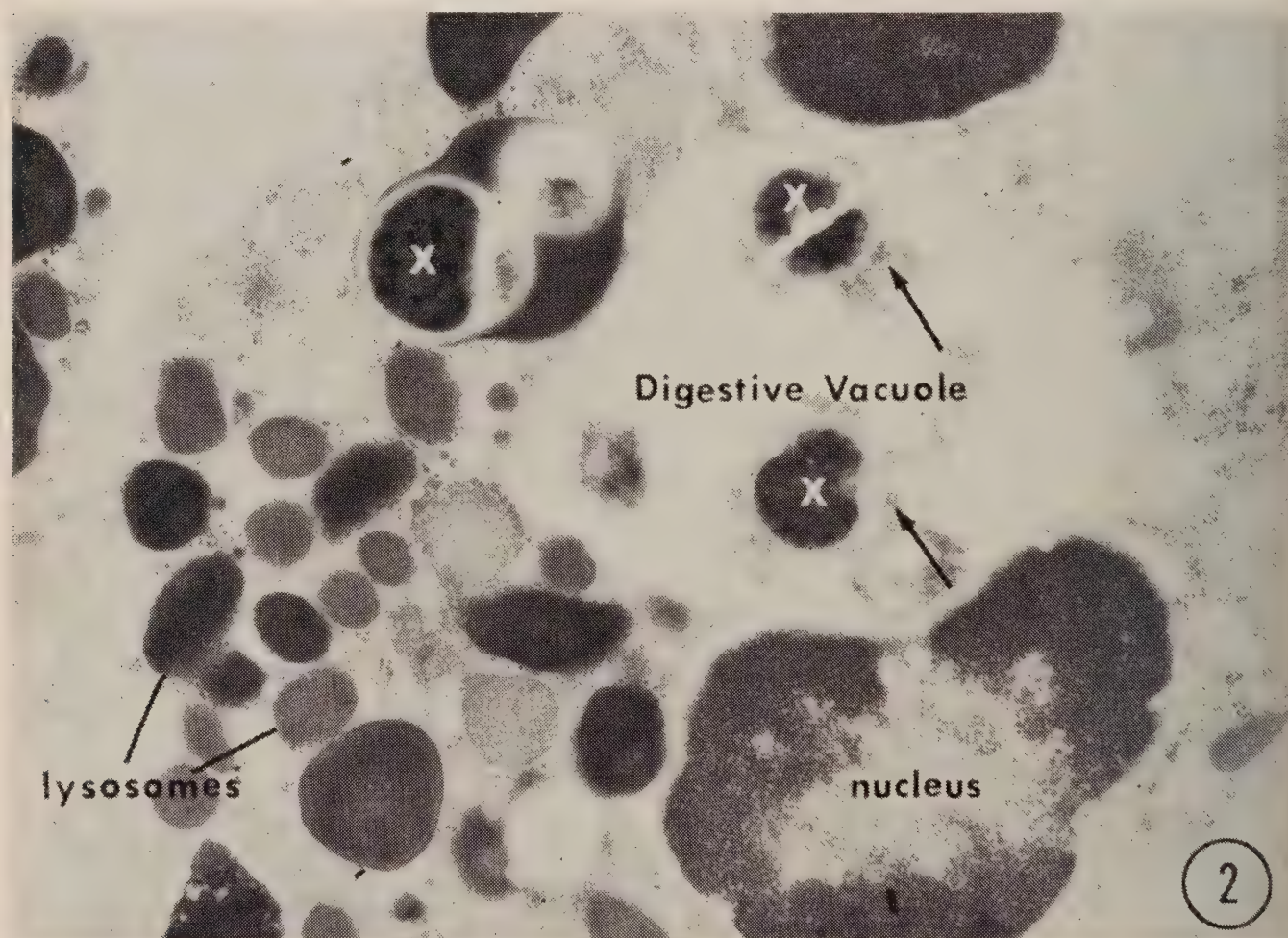


FIGURE 2 This rabbit neutrophil has ingested bacteria (X) which are contained within a digestive vacuole. Lysosomes liberated into this vacuole now appear as precipitated granular material (arrows). x22,000

vents the establishment of the bacilli.¹ Spermine acts independently of immunological mechanisms. Perhaps similar factors potent against other parasites may some day be discovered in skin or gingiva.

GENERAL DEFENCE

This mechanism is activated if invaders penetrate into the circulation. The fixed elements of the reticulo-endothelial system (RES) monitor the bloodstream and lymphatic fluids. Because of its ubiquitous distribution, the RES exerts a dominant control over circulating parasites. Here again, phagocytosis and intracellular digestion effectively eliminate threatening microbes and viruses.²⁵ These particles must be coated by opsonizing antibodies so that the phagocytic cells can rapidly remove them from the blood.

Bacteria can also be clumped together by agglutinating antibodies. Within certain broad limits, the larger the particle size, the more efficient the phagocytic powers of the RES. Moreover, certain antibodies acting in conjunction with serum complement can actually kill bacteria by virtue of their lytic properties. Complement is a series of serum proteins which, not being antibodies, do not require an antigenic stimulus for their synthesis. The lytic interaction between antibodies, complement and antigen is best illustrated in the case of gram negative microbes.

Natural or acquired immunity to infection may thus result from greater ability of the cells of the RES to eliminate pathogens (cellular immunity) and from intensified opsonizing or lytic power of the serum (humoral immunity).

SUMMARY

Current information concerning antimicrobial defences has been summarized. This knowledge may be applicable to caries and to pulpal and periodontic infection.

The author thanks N. S. Taichman of the Departments of Pathology and Periodontology, University of Toronto, who kindly furnished the electron-micrographs.

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The development and use of contrast media in sialography

Contrast media employed for radiographic visualization of salivary gland duct structure are of two kinds: oil derivatives and water-soluble media. Injection of the oil derivatives can be painful and may give rise to an allergic response or a foreign body reaction. Water-soluble media have a shorter working time, are rapidly eliminated from the gland and excreted. Future sialographic contrast media may incorporate radioisotopes to permit radioactive scanning of salivary glands.

Les techniques de contraste utilisées pour la reproduction radiographique de la structure du système salivaire sont de deux sortes: celles qui emploient des dérivés de l'huile et celles qui se servent de produits solubles à l'eau. L'injection des dérivés de l'huile peut être douloureuse et suscite parfois une réponse allergique ou une réaction de corps étranger. Les produits solubles à l'eau ont un effet moins durable: la glande les élimine rapidement et les excrète. Il est possible qu'à l'avenir les techniques sialographiques de contraste incorporent des radioisotopes pour permettre une exploration radioactive des glandes salivaires.

Sialography [$\sigma\iota\alpha\lambda\omicron\nu$ saliva + $\gamma\rho\alpha\psi\epsilon\iota\nu$ to record] is the radiographic visualization of the ductal system of the salivary glands by means of a radiopaque solution introduced into the system. Sialography¹ is used to:

1. Determine if a mass in the parotid or submaxillary area is intrinsic or extrinsic, inflammatory or neoplastic, encapsulated or invasive;
2. Aid in planning surgery in the involved area;
3. Demonstrate the presence or position of calculi, cysts, fistulae and other structures;
4. Select a biopsy site;

5. Study the anatomical configuration and variation of the glands; and

6. Therapeutically treat a gland plagued by dental stasis due to mucus or necrotic plugs.

This paper reviews the progress and current status in the use of sialographic dyes.

OIL DERIVATIVES

The first recorded radiograph of the duct system of the parotid gland was made in 1904 by Charpy,² an anatomist who was particularly interested in the

anatomical structure of this gland. He injected mercury into anatomical specimens and then radiographed the gland. In 1913 Arcellain³ injected a bismuth solution in a patient with a calculus in Wharton's duct. Although Charpy and Arcellain successfully demonstrated ductal appearance, the heavy metals utilized as contrast media proved very irritating and destructive. The lack of safe and satisfactory contrast media halted further development of diagnostic sialography and contrast media for a decade.

As a treatment for lumbago, Sicard and Forestier⁴ in 1922 injected lipiodol into the epidural spaces. Subsequently, they observed its upward and downward dispersion in the epidural spinal canal. They then injected this material intrathecally and, finding it well tolerated by the meninges, reasoned that it might be safe for the exploration of other body systems. These authors also observed residual lipiodol on films five to 15 days after repeated injections. Even at this early date, they suggested that the elimination of lipiodol might require several months to two years.

Lipiodol⁵ is a glyceryl ester of poppyseed oil, a halogenized oil. It is a combination of 40 per cent elemental iodine and poppyseed oil. Iodine endows the medium with the required radiopacity. Lipiodol, an amber coloured oily liquid, is faintly aromatic and tasteless.

In 1925 Barsony⁶ made the first actually recorded sialogram. Using potassium iodide, he injected Stenson's duct and observed what he called 'idiopathic dilation' of the duct. Later investigators,⁷⁻¹⁴ using lipiodol, found it excellent for demonstrating normal ductal structure and its variations in the presence of parotitis, neoplasms and calculi. They used amounts ranging from 0.5 to 2 ml. which they injected slowly into the gland. Lipiodol vanished within one to three days, but residues from repeated injections remained for five to 15 days.

Neustaedter et al¹² in 1933 established the following requirements for an ideal radiopaque medium: (1) proper viscosity, (2) capability of rapid absorption and excretion, (3) freedom from injurious effects on the tissues, and (4) sufficient radio-

capacity to render good delineation of structures under examination. Other investigators soon limited their use of lipiodol because it did not meet all of these requirements.¹⁰ Many considered the poppyseed oil derivatives as too viscous although heating did liquefy them somewhat. Neustaedter et al also claimed irritation from lipiodol. This took the form of a foreign body granuloma. They therefore developed another medium, Neo-Iopax, a pyridine derivative with 5.5 per cent iodine in close organic combination. They used this solution in a 50-50 mixture with glucose. Supposedly good results were obtained with emptying said to occur in 60 minutes. However, there was no further development of this medium.

Further clinical evidence of a foreign body reaction was recorded by Wright¹⁵ who demonstrated, in 1935, a reaction of pulmonary tissue to lipiodol. Felton¹⁶ and Storrs et al¹⁷ demonstrated similar reactions. Epstein and Bendix,¹⁸ in 1954, injected lipiodol directly into salivary glands and produced granulomatous changes in two weeks. Mandel and Baurmash,¹⁹ in 1962, reported granulomatous changes in the buccal soft tissues after an accidental deposition of lipiodol. Actually, there is no ground for concern over the fate of lipiodol provided the solution is limited to the ductal tree. But sialography is usually performed in the presence of salivary gland pathology; hence duct perforation with escape of the medium is not unusual.

In 1947 Thoma⁵ described another oil derivative, Iodochlorol. It comprised 27 per cent iodine and 7.5 per cent chlorine combined with highly refined peanut oil. This medium was less irritating and could be diluted with two to three volumes of peanut or olive oil to reduce its viscosity. Warming to body temperature increased its fluidity. Iodochlorol was more stable and thus had a longer shelf life than lipiodol. It could be sterilized in an autoclave but, once heated, had to be used within 30 days.

Subsequent progress with contrast media predominated in the field of gynaecology. In 1944 Bernstein²⁰ used an opaque medium for radiographic visualization of the uterine canal and oviducts. He called this hysterosalpingography. The

medium, Visco-rayopake, a diethanolamine salt of 2,4-dioxo-3-iodo-6 methyl tetratyopyridine acetic acid, is quickly absorbed, stable, sufficiently viscous and satisfactory for clinical study of the female reproductive system; but it has never been used for sialography.

Most sialographic contrast media of the early 1950's were oil derivatives. Epstein and Bendix¹⁸ tried to find an oil which would not irritate. They injected submandibular salivary glands of dogs with various non-volatile substances. The media used was sesame oil, mineral oil, mineral oil emulsion, cotton seed oil, poppyseed oil, peanut oil, olive oil, oil of theobroma and methiodal. Quantities of 1.5 to 2 ml. were injected. Poppyseed oil, the vehicle for lipiodol, produced changes in the gland in two weeks. Sesame and peanut oil also caused a marked reaction but olive oil, mineral oil and cotton seed oil seemed relatively bland. Epstein and Bendix therefore urged that these oils be substituted to reduce foreign body reactions.

The viscosity problems associated with lipiodol and Iodochlorol⁵ led to the introduction of more fluid media. The first of these was Pantopaque, an ethyl iodophenylundecylate used in myelography. Introduced by Rubin et al,¹ Pantopaque is used in an emulsified aqueous form. Low surface tension enhances its diffusibility and facilitates its penetration of fine ducts under low injection pressures. Epstein²¹ in 1956 introduced a further contrast medium with lower viscosity. This was Ethiodan (Ethiodal), an ethyl ester of the iodinated fatty acid of poppyseed oil. This substance was much more fluid than lipiodol because of its simpler molecular structure. Early results were said to be excellent but more recent information suggests that Ethiodan can cause a granulomatous reaction.

Persistent problems continued to plague the oil derivatives. The media were retained longer than desired. Occasional allergic reactions were ascribed to their iodine component. And there remained the possibility of foreign body reactions. These difficulties led to the introduction of water-soluble compounds. At first these contrast media were not used for sialography.

WATER-SOLUBLE MEDIA

Diodrast, a diethandamine salt of 3,5 di-iodo-4-pyridine N acetic acid, was among the first water-soluble compounds to be made available. This urographic medium lacks sufficient opacity and is too fluid for routine use.²²

Dionosil is another contrast medium developed for bronchography.²³ This propyl ester of 3,5 di-iodo-4-pyridine N acetic acid is suspended in water with the aid of carboxymethyl cellulose. The iodine is in organic combination and there is no release of free iodine or inorganic iodides. Dionosil is eliminated from the lungs in three to four days. Though non-toxic, it is extremely irritating.

Renografin,²⁴ a tri-iodinated organic radiopaque compound, is used in urography. Renografin-60 contains 60 per cent of the methyl glucamine salt of 3,5 diacetyl amido-2,4,6 triiodobenzoate in aqueous solution, adjusted to neutrality with NaOH. The solution contains approximately 29.26 per cent iodine. Excellent results and very little reaction are claimed for this agent.

Sinografin, another water-soluble medium, was introduced for hysterosalpingography in 1959.²² Sinografin is an aqueous solution of methylglucamine salts of diatrizoate and iodipamide. The solution contains approximately 38 per cent iodine. Its injection is painless and good films are obtained. Ninety per cent of the medium is cleared within 30 minutes.

Nitsche and Valyi²⁵ prefer water-soluble media for sialography. They introduced methyl glucamine iodipamide, a pure aqueous solution of the bis N methyl glucamine salt of N, N'-adipyl-bis 3 amine-2,4,6-triiodobenzoic acid. The large molecules and the concentration make this a rather viscous material. Its injection, however, is painless. Radiographic contrast is good and the material is eliminated in 15 minutes. The authors recommend it as the medium of choice for sialography.

Drevattne and Stiris²⁶ in 1964 used the water-soluble medium Isopaque 75 per cent. This solution is quite dense and has a low viscosity. It is so quickly hydrolyzed that it is necessary to maintain a continuous flow of the medium during the radiographic exposure. Its rapid disap-

pearance permits immediate re-examination of a gland if necessary.

SUMMARY

The oil derivatives include viscous media like lipiodol and more fluid agents like Ethiodan. The working time with these solutions is quite rapid; they require only minutes for injection and subsequent visualization. These media disappear in one to three days, elimination occurring primarily from the ducts of the gland. Patient response to these agents ranges from none at all, through pain on injection, allergic response, to foreign body reactions.

The water-soluble media are miscible in body fluids and saliva. Their working time is very short since they are eliminated so rapidly. Elimination occurs primarily by reabsorption. They are subsequently broken down and excreted by the kidney. There is very little pain, if any, on the injection of a water-soluble medium. Allergic reactions have not been reported in sialographic procedures, but have occurred during intravenous injection.

The varied properties and characteristics of available contrast media complicate the selection of a particular agent. The possibility of side effects from the oil derivatives detracts from their usefulness. Conversely, the water-soluble media satisfy nearly all the characteristics of an ideal agent.

Current progress in nuclear medicine may influence the future course of sialography. Several investigators^{27,28} have already described diagnostic radiographic techniques using radioisotopes. Radioactive tracers have also been used for the detection of brain tumours and lung disease. Consequently, the next agent introduced for sialography may well be a radioactive scanning medium.

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A case of a misleading fistula

An 11 year old girl presented with a fistula in the upper left lateral incisor region. Radiographic investigation seemed to incriminate the lateral incisor as the offending tooth. Routine vitality tests proved inconclusive, but test cavities prepared in the left central and lateral incisors clearly identified the pulp of the central incisor as the source of the infection. This case report illustrates that vitality tests and radiographic examination alone may not always indicate the true origin of a fistula.

Une petite fille de 11 ans présentait une fistule, dans la région supérieure gauche de l'incisive latérale. Une étude radiographique semblait désigner l'incisive latérale, comme étant la dent responsable. Des tests de vitalité ne se révélèrent pas conclusifs, mais des cavités-témoins, dans les incisives centrales et latérales gauches, identifièrent clairement la pulpe de l'incisive centrale, comme étant la cause de l'infection. Ce rapport montre que les tests de vitalité et l'examen radiographique n'indiquent pas toujours, à eux seuls, la véritable origine d'une fistule.

Endodontic diagnosis is analogous to criminal investigation. Clues must be sought, traced and fitted together before a verdict is reached. Symptoms can be misleading and their interpretation demands the application of judgment and experience in order to arrive at an accurate diagnosis.

A fistula on the labial or buccal mucosa is a clinical manifestation of sup-

puration. This lesion occurs when pathogenic organisms overcome the local tissue resistance and proteolytic enzymes released by polymorphonuclear cells liquefy collagen, ground substance, tissue cells and bacteria to produce pus.¹ This purulent exudate tries to escape by the path of least resistance.¹ Bone and soft tissue are consequently pierced in the front of the mouth where they are

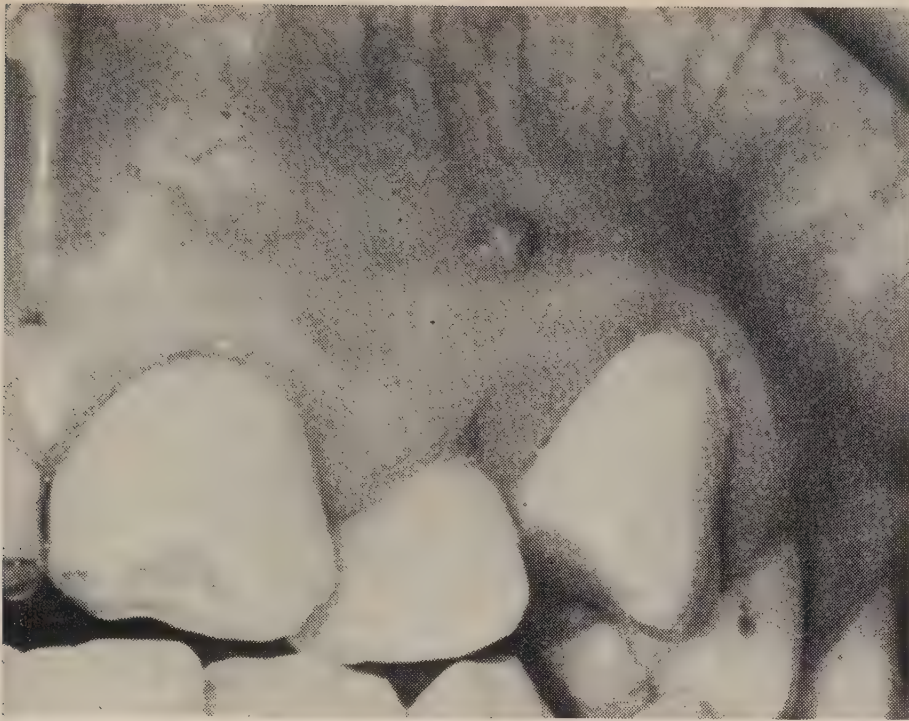


FIGURE 1 Pre-operative photograph showing the orifice of the fistula between the upper left cuspid and lateral incisor.



FIGURE 2 Pre-operative radiograph of the upper left incisor region.



FIGURE 3 Radiograph showing first gutta percha point inserted in the fistula.



FIGURE 4 Radiograph showing second gutta percha point fully inserted into the fistula.

thinnest, usually on the labial surface opposite the apical third of the tooth involved.

Fistulae can be of either pulpal or periodontic origin. The differential diagnosis is usually based on vitality tests. However, these tests can be confusing, especially in younger patients. A common method of tracing the source of a fistula is to insert a radiopaque object such as a gutta percha point in the fistula and take a radiograph.² Invariably the point will

terminate at the apex of the offending tooth. But this procedure is not infallible, as the following case report clearly indicates.

CASE REPORT

History and Examination.—H.J., an 11 year old girl, who recently immigrated from Italy and could not speak English, complained of vague pain in the left ante-



FIGURE 5 Postoperative photograph. The fistula has disappeared.



FIGURE 6 Postoperative radiograph of the upper incisor region.

rior maxilla. Due to the language barrier we could not obtain a complete history. Both central incisors were chipped, reflecting evidence of recent trauma. A fistula was discovered between the upper left cuspid and lateral incisor (Figure 1). The pre-operative film showed an area of resorption over the apices of the maxillary left central and lateral incisors (Figure 2). A further radiograph with a gutta percha point inserted into the fistula (Figure 3) seemingly identified the lateral incisor as the offending tooth. Customary vitality tests (hot, cold and electrical stimulation) were then performed. To our amazement all anterior teeth responded within normal limits. Since the gutta percha point might not have penetrated far enough into the fistula, we repeated the radiograph with the point *in situ* (Figure 4). The result was identical. Fearing that apprehension and the difficulty of communication could have produced a false response to the vitality tests, we cut a test cavity in the lateral incisor. The patient reacted violently as soon as the bur penetrated the enamel. We then cut a second test cavity in the left central incisor which also demonstrated radiographic evidence of some pulpal disturbance compared to the right central incisor (Figure 2). This time there was no response even on penetration of the pulp. A discharge of pus from the root canal

confirmed the diagnosis of a suppurative apical periodontitis emanating from the pulp of the left central incisor.

Treatment — The root canal was left open for one week. At the following appointment the canal was enlarged to a No. 100 diameter under aseptic conditions. A negative culture was obtained after two treatments with cresatin. The fistula had disappeared by then (Figure 5) and the root canal was filled (Figure 6).

COMMENT

It is necessary to complete each step of the investigative sequence before making a diagnosis. In this patient the usual vitality tests alone suggested a periodontic origin for the fistula. However, careful perusal of the radiograph and the reaction to test cavity preparation led to conclusive evidence of the pulpal source of the infection.

The authors thank Mr. M. A. Domokus, photographer at the University of Manitoba, for the illustrations.

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Sialography: A Useful Aid in Diagnosing Parotid Tumours

R. T. Carlin and Reubin Seldin. J. Oral Surg. 25:139, 1967.

Those parotid tumours that are demonstrated by sialograms can frequently be categorized as benign or invasive, depending on the filling patterns. Pertinent information from the clinical examination of the patient, however, must be considered, since sialography can fail to make this important distinction. Different sialographic techniques are discussed by the authors, as are the technical problems involved in demonstrating parotid tumours. Five cases of tumours and one case of tuberculosis are presented to illustrate basic filling patterns and some of the diagnostic problems that are encountered.

Polycarbonates: A Preliminary Report on the Use of Polycarbonates as a Denture Base Material

G. D. Stafford and D. C. Smith. Dent. Pract. 17:217, 1967.

The authors investigated the use of polycarbonates as a possible denture base material. Polycarbonates are linear polyesters of carbonic acid. They possess excellent impact properties, adequate fatigue qualities, and good dimensional stability. During recent years, polycarbonates have become widely used in general industry, but it is only very recently that they have assumed any importance in dentistry. Commercially, polycarbonates are of importance on account of the ease of processing and of the excellent physical properties which they possess. They are used for such items as crash helmets, and for protective covers for industrial, household, and office equipment. Not only may polycarbonate be moulded in a variety of ways to give pipes and tubes, rods, profiles, sheets, films, and hollow bodies, but it is also possible to machine the material, and it can be drilled, turned, milled, planed, sawn, cut, stamped, ground, and polished. Film and sheet may be heat sealed and hot-air welded. It also has the properties of being non-toxic, of resisting hot water, and

of good wear. It can be made transparent, and will easily stand temperatures of 100°C.

Polycarbonate has been used as a material for filling teeth and as a denture base material. Since no dough technique is possible, an injection moulding machine suitable for dental flasks has been developed.

Twenty-five full denture cases were processed using polycarbonate denture base material. These dentures have been in the mouth for varying periods from four to 12 months. There has not been one single fracture with the exception of one upper porcelain bicuspid which was lost from a denture. There has been no evidence of gaps appearing between resin and porcelain teeth due to shrinkage of the denture base. The dentures have maintained a clean appearance. They are being cleaned by various methods as part of the clinical trial and it is too early to say which should be the method of choice. The currently recommended cleaning routine is washing with soap and water with the occasional use of a hydrochloric acid cleaner. The results, so far, suggest that polycarbonate has encouraging possibilities as a denture base material.

Occlusal Adjustment Technique in Surgical Prognathism Procedures

Joe Frisch, R. A. Jones, D. D. Shell and R. L. Lister. J. Oral Surg. 25:154, 1967.

The authors describe a technique for pre-operative occlusal adjustments. This technique does not require use of an articulator. It insures that patients will have good centric relation after surgery for prognathism. Before surgery, casts are made, aligned manually, marked with pencil for adjustment, following the indications made by articulator paper. The occlusion is corrected first on the casts and then on the patient's teeth by use of high-speed grinding stones. After the patient's teeth have been reshaped, new impressions are taken and compared with the original working casts. Additional adjustment is made until the best possible occlusion has been achieved. Only then is surgery performed. With this technique, the postoperative course in the patient is shortened, and stabilization is enhanced.

The Effect of a Dicalcium Phosphate Chewing Gum on Caries Incidence in Children: 30 Month Results

S. B. Finn and H. C. Jamison. J. Amer. Dent. Ass. 74:987, 1967.

A total of 606 school age deaf and blind children participated in a study of the effect of a dicalcium phosphate dihydrate chewing gum on the incidence of dental caries. The children were randomly assigned to groups that chewed a sugar, a sugar-phosphate, or a sugarless gum. After 30 months, 416 students remained in the study, but the number of students remaining in each group was almost equal. Results after six examinations indicated a significant reduction in DF surface and DMF surface increments in the group that chewed the sugar-phosphate gum compared with the group that chewed the sugar gum, but there was a more significant difference and reduction in dental caries in the former group compared with the latter group when only proximal lesions were considered. The significant reduction in caries increment in the group that chewed the sugar-phosphate gum compared with the group that chewed the sugar gum was greater than the reductions in the group that chewed the sugarless gum compared with the group that chewed the sugar gum. Differences between the groups that chewed sugarless and sugar-phosphate gum were not significant.

Dental Aspects of the Prenatal Administration of Fluoride

W. L. Babeaux and I. Zipkin. J. Oral Ther. 3:124, 1966.

The authors review the literature on the effect of prenatally administered fluoride on caries activity of the teeth of the offspring of the human and the experimental animal. Blayney and Hill,¹ Tank and Storvick,² Arnold et al,^{3,4} and Feltman and Kosel⁵ support the thesis that the combined administration of pre-and postnatal fluoride is more effective in inhibiting caries than fluoride administered only postnatally. Only Feltman⁵ reported a pronounced cariostatic effect of fluoride when administered prenatally alone. This finding awaits corroboration. Carlos et al,⁶ and Horowitz⁷ found no effect of pre-and postnatally administered fluoride on the deciduous teeth when compared to the postnatal effect alone. There is no evidence that prenatally administered fluoride has any effect on the permanent first molars — the only teeth of the permanent dentition showing any evidence of calcification before birth.

Studies in the rat have indicated that administration of concentrations of fluoride up to 25 ppm in the drinking water during gestation and lactation confer no cariostasis on the teeth of the offspring. At a concentration of 40 ppm F, however, some caries inhibition has been reported.

The enhanced mineralization and reduced solubility of prenatally fluoridated teeth in the rat and the increased fluoride content of deciduous teeth in the human are consistent with the proposition that prenatally administered fluoride in the human may afford some cariostasis to the deciduous teeth.

1. Blayney, J. R. and Hill, I. N. The Evanston dental caries study XXIV. Prenatal fluorides— value of waterborne fluorides during pregnancy. *J. Amer. Dent. Ass.* 69:291, 1964.
2. Tank, G. and Storvick, C. A. Dental caries experience of school children in Corvallis, Oregon, after 7 years of fluoridation of water. *J. Pediat.* 58:528, 1961.
3. Arnold, F. A., Jr., Dean, H. T. and Knutson, J. W. Effect of fluoridated public water supplies on dental caries prevalence. Seventh year of Grand Rapids-Muskegon study. *Public Health Rep.* 68:141, 1953.
4. Arnold, F. A., Jr., Dean, H. T., Jay, Philip and Knutson, J. W. Effect of fluoridated public water supplies on dental caries prevalence. Tenth year of the Grand Rapids-Muskegon study. *Public Health Rep.* 71:652, 1956.
5. Feltman, Reuben and Kosel, George. Prenatal and postnatal ingestion of fluorides — fourteen years of investigation — final report. *J. Dent. Med.* 16:190, 1961.
6. Carlos, J. P., Gittelsohn, A. M. and Haddon, William, Jr. Caries in deciduous teeth in relation to maternal ingestion of fluoride. *Public Health Rep.* 77:658, 1962.
7. Horowitz, H. A study of the prenatal effects of controlled fluoridation on deciduous teeth. Personal communication, 1965.

Topical Fluorides (Including Dentifrices)

H. Berggren. Int. Dent. J. 17:40, 1967.

The accepted method of topical application of fluorides described by Knutson and Bibby is time consuming and, in countries where dental hygienists are not available, requires the personal attention of the dentist. Supervised toothbrushing at intervals of two months with a 0.5 per cent solution of sodium fluoride has been practised in Sweden for the past six years. A 29 per cent reduction in the incidence of caries in school children was observed during a two year experimental period. In addition the gingival health of the children improved as a result of the régime. The effect of other fluorides, zirconium fluoride and ferric fluoride, has also been studied. In cases where toothbrushes were not available mouth rinsing with a 0.2 per cent solution of sodium fluoride at intervals of two weeks also reduced caries incidence. The possible caries-inhibiting value of the addition of bone meal to school meals is also discussed.

National Convention

Board of Governors Meeting Advanced

The start of the annual meeting of the Board of Governors has been advanced by half an hour. The Board will meet in the Vancouver Hilton Hotel at 9.00 a.m. on Monday, June 24 (not 9.30 a.m. as announced in the March Journal).

Task Force Panel to Outline Children's Dental Plan

The Canadian Dental Association's proposed dental health plan for children will be aired at this year's annual CDA panel presentation in Vancouver. The event is slated for Friday, June 28, at 3.30 p.m., following the CDA luncheon at the national convention.

A task force comprised of the Executive Council is supervising preparation of the plan. CDA sections on public health, paedodontics, endodontics and periodontics presented their views at a special hearing on January 29. The task force reviewed an interim draft of the plan on February 13. The task force has also commissioned several lateral studies. The reports of these studies and the final draft of the plan will be transmitted for consideration by the Board of Governors preceding the national convention. Thereafter a three-member nucleus of the task force will describe the plan to convention delegates and answer questions from the audience attending the

special panel program. The panel will be led by CDA President W. P. Munsie who will deliver a keynote address. Other members of the panel will be President-elect Henri Brouillet and W. J. Spence, a member of the CDA Executive Council.

Clinics and Special Lectures Set

Delegates will find a wide variety of table clinics, projected clinics and group clinics at the CDA national convention in Vancouver.

A special feature will be 'The Study Club Approach to Amalgam Procedures' by F. L. Jacobson, Seattle, Washington, and members of his associated study clubs.

The following lectures sponsored by CDA specialty sections will also be open to general convention delegates:

Convention Highlights

WEDNESDAY, JUNE 26

6:00 Registration Party

THURSDAY, JUNE 27

9:00 Essay (The whole profession)—G. D. Stibbs, Seattle
10:00 Table clinics
10:00 Paedodontics and endodontics—C. A. Sweet, Walnut Creek, California
10:30 Amalgam—Rex Ingraham, Los Angeles
10:30 Grieve Memorial Lecture—S. J. Kloehn, Appleton, Wisconsin
12:00 BC Government luncheon—Premier W. A. C. Bennett
2:30 Periodontics—Saul Schluger, Seattle
2:30 Endodontics—D. H. Glick, Los Angeles
2:30 Oral medicine—Ferdinando Serri, Pavia, Italy
4:00 Prosthodontics—S. C. Robinson, Portland, Oregon
4:00 Practice administration—Rex Ingraham, Los Angeles
6:00 Paul Bunyan beef and salmon barbecue

FRIDAY, JUNE 28

9:00 Table clinics
9:00 Occlusion—Rex Ingraham, Los Angeles
9:00 Periodontics—Saul Schluger, Seattle
10:30 Teenage dentistry—G. D. Stibbs, Seattle
12:00 CDA Luncheon
2:00 Round table—Prepaid dental plans
2:30 Occlusion—Rex Ingraham, Los Angeles
3:30 CDA symposium—Children's dental plan
6:00 Evening in Chinatown

SATURDAY, JUNE 29

9:00 Table clinics
9:00 Operative dentistry—G. D. Stibbs, Seattle
9:00 Oral medicine—Ferdinando Serri, Pavia, Italy
10:00 Round table—Occlusion
12:00 Luncheon, annual meetings
6:00 President's Fiesta

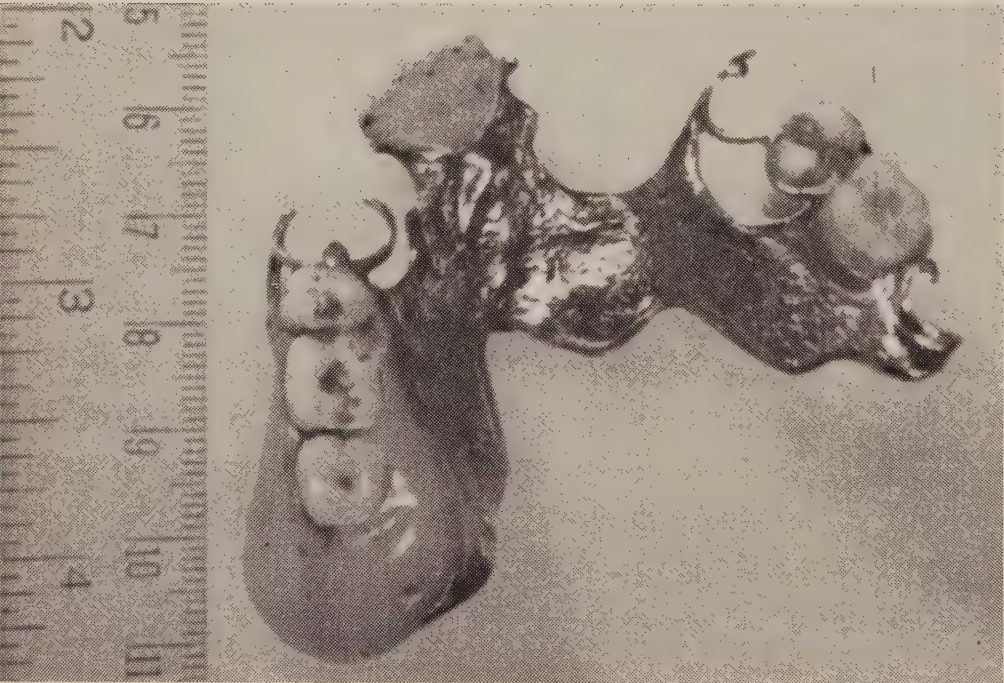
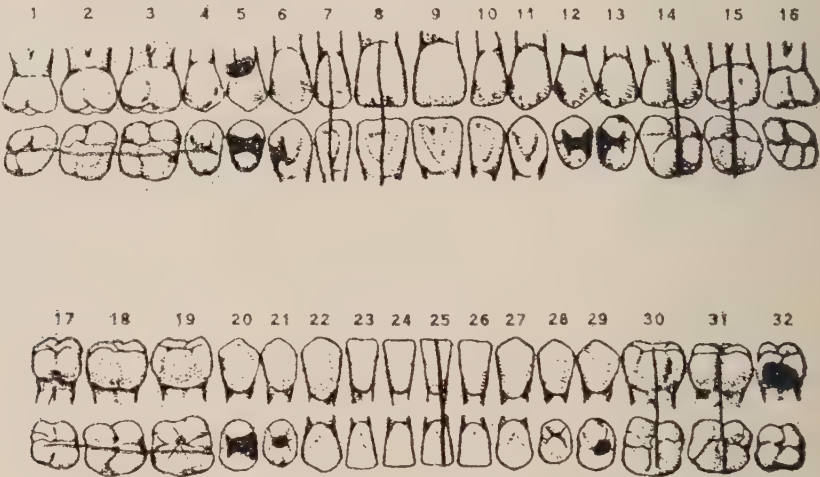
Seminar on periodontic therapy, Saul Schluger, Seattle;
Split palate orthodontics, A. J. Haas, Cuyahoga Falls, Ohio;
Dentistry for the teenager, C. R. Castaldi, Winnipeg, and
Serial extractions, W. R. Mayne, Salem, Massachusetts.

Canada and the Provinces

RCMP Seeks Aid in Identifying Corpse

The remains of an unidentified man were found January 14 at Burnaby, BC. The

body was in an advanced state of decomposition. The police estimate that death occurred sometime during the previous 9-15 months. The deceased was 5 ft. 9 in. to 6 ft. in height, weighed approximately 170 lbs., and was 30-40 years old. Evidence of past dental treatment is shown in the accompanying pictures. All fillings are of silver amalgam. Missing teeth include the lower left central incisor, upper and lower left first and second molars, upper right central and lateral incisors, and upper and lower right first, second and third molars. The partial upper denture has a Vitallium base. The denture was therefore probably made in a franchised laboratory in a large city. Any reader who associates these pictures with any patient is asked to communicate at once with the nearest Royal Canadian Mounted Police detachment.



International Items

FDI Varna Session Dates Changed

Dates for this year's 56th annual session of the Fédération Dentaire Internationale at Varna, Bulgaria, have been changed. The official opening will be at 8.00 p.m. on Monday, Sept. 16. The closing ceremony is set for Sunday, Sept. 22. These dates are in place of Sept. 17-24, 1968.

Seek Table Clinics for FDI Varna Meeting

Canadian dentists who are supporting members of the Fédération Dentaire Internationale have been invited to participate in the table clinic program at the FDI annual session in Varna, Bulgaria, September 16-22. Those interested should apply before May 1 to the secretary of the FDI Bulgarian Scientific Committee, PO Box 1117, 8 Belo More Str., Sofia, Bulgaria. The application should give a brief description of the proposed table clinic as well as the applicant's name and degrees. Dentists whose applications are accepted will be notified accordingly before June 15.

CDA Congratulates World Health Organization on 20th Anniversary

The World Health Organization observes the twentieth anniversary of its foundation this year. To mark the event, CDA President W. P. Munsie has sent the following message to the Director General of WHO, Dr. M. G. Candau, in Geneva:

The president, officers and members of the Canadian Dental Association wish to convey to the World Health Organization, on the occasion of its twentieth anniversary, hearty congratulations for the significant contributions the Organization has made to world health and best wishes for an increasingly successful future. The Canadian Dental Association is particularly aware of the World Health Organization's efforts in focusing attention on the integral nature of dental health to general health and also its projects aimed at improving the dental health of peo-

ple around the world. These, along with the many other contributions to world health, are highly commended.

Berkshire Conference in New York June 16

Tufts University annual Berkshire Conference in Periodontology and Oral Pathology will be held at the New York Hilton Hotel, New York, Sunday, June 16, immediately preceding the annual spring meeting of the American Academy of Periodontology. Lecturers for the one day meeting include Paul Keyes, Samuel Turesky, Irving Glickman, Robert Kistner, J. L. Bernier and I. W. Scopp.

The conference is open to general practitioners and dentists in specialized practice. Tuition and luncheon fee is \$30. Further information can be obtained by writing the Berkshire Conference, Tufts University School of Dental Medicine, 136 Harrison Avenue, Boston, Mass. 02111, USA.

Sixth Iranian Congress Sept. 11-15

The sixth annual congress of the Iranian Dental Association will be held at the National University of Iran in Tehran Sept. 11-15. Persons wishing to participate in the congress may contact O. Bakhtiari, secretary-general of the Iranian Dental Association, 82 Hafez Ave., Tehran, Iran.

Implant Course in Paris Nov. 17-21

The International Research Centre for Implants in Dentistry has announced a three day limited attendance course on 'Implantology' Nov. 17-21. The course, to be held at the Lariboisière Hospital, Paris, will cover the entire range of implant techniques. The enrolment fee is payable in two instalments: an immediate deposit of \$100 to reserve admission, and a further \$160 payable on arrival. Early enrolment is advisable and applications may be sent to R. Cherchève, 5 avenue de l'Opéra, Paris, France.

Economics

Welfare Dental Plan for Toronto

Metropolitan Toronto last February approved a plan to provide dental care to welfare recipients. The estimated cost of the program, which began April 1, is \$432,000 for the first year, of which Metro Toronto's share is expected to be \$209,952. The province of Ontario will pay the rest. The program is expected to provide coverage for approximately 30,000 welfare recipients of whom 12,000 are likely to utilize dental services at an average cost of \$36 per patient per year.

Services will be supplied by private practitioners, through an agreement negotiated between Metro Toronto's welfare department and the Royal College of Dental Surgeons of Ontario. The plan is to be reviewed after a six months' trial. The following services will be provided under the scheme: examination and bitewing radiographs \$6; extractions — one tooth \$8, each additional tooth \$4; synthetic porcelain fillings \$10; silver amalgam fillings \$7-20; prophylaxis \$7; pulp protection and temporary crown for injured front teeth \$16.

US Dentistry Costlier

Living costs in the United States rose three-tenths of one per cent in January — increasing for the fourth consecutive month — with grocery prices and physicians' bills leading the way. Grocery prices, which usually hold steady in January, increased eight-tenths of one per cent, according to the US Department of Labour. Physicians' and dentists' fees, the fastest rising item in the US consumer price index for several years, increased seven-tenths of one per cent.

Research

New Method Produces Fibre-Reinforced Gold-Nickel Alloys for Dentistry

Recent metallurgical research carried out at the Brooklyn Polytechnic Institute,

New York, has resulted in a new technique for producing fibre-reinforced alloys. The discovery was reported in the February 3 issue of *Nature*.

The new technique was discovered through studies of gold-nickel alloys, in which the proportions were either 30 atoms of gold to 70 atoms of nickel, or 50 atoms of each metal. At temperatures near 900° C. these alloys are solid, and the nickel and gold atoms are arranged more or less randomly on their crystal lattice. At lower temperatures between 450° and 750°C. the alloy separates into two phases, one consisting mostly of nickel and the other mostly of gold. In the upper part of the temperature range in which the dissociation into two phases occurs, the nickel phase appears in the form of parallel bundles of fibres in a matrix of the gold phase. These fibres strengthen the alloy appreciably because the fibres themselves have a very high strength.

This work is important because it provides a method of making fibre-reinforced alloys which avoids the tedious process of first preparing the high strength fibres and then allowing a matrix material to solidify around them. The only other direct technique for preparing fibre-reinforced alloys involves the unidirectional solidification of alloys having a eutectic composition. This is of limited value because it can be applied only over a very limited range of alloy compositions.

Alloys of gold with nickel are being studied at Brooklyn because they may have important application in dentistry and surgery. The new discovery will enhance their suitability for applications in these fields.

Fluoridation

Fluoridation Equipment for Quebec City

Quebec City's new waterworks will be given the equipment necessary for fluoridation. The city's executive committee decided this on December 7, 1967, and asked the waterworks department to prepare plans and estimates. This action is in line

with recommendations made by the city's medical health officer, Jacques Roussel, and Dominique Gauvin, director of public health laboratories.

Mr. Gauvin estimated the initial cost of equipment at approximately \$15,000 and the annual operating cost at \$20,000. Dr. Roussel said that the provincial government might pay for part of the apparatus.

Quebec Dental Society President Yves Poulin praised the civic authorities for taking this action. The Society will now seek approval for fluoridation in other towns in the vicinity of Quebec City.

Public Health

CPHA Meets in Vancouver May 6-9

The Canadian Public Health Association will hold its 1968 annual meeting at the University of British Columbia, Vancouver, May 6-9. Public health dentists will have their own sectional meetings on the afternoons of May 7 and 8.

The essayists include Herschel Horowitz of the US Public Health Service, San Francisco; H. J. Hann of Prince George, BC; A. S. Gray of Kelowna, BC; C. W. B. McPhail of Saskatoon; and D. J. Yeo of Vancouver.

Further information may be obtained

from Irene Glasgow, secretary, CPHA Dental Health Section, Nightingale Dental Clinic, 2740 Guelph St., Vancouver 10, BC.

Dental Organizations

Dr. Faith Heads Quebec Orthodontists

R. W. Faith, Montreal, was named president of the Province of Quebec Association of Orthodontists when that organization held its annual meeting January 22. Other members of the executive are J. J. Bisailon, past president; M. H. Wechsler, vice-president; and J. R. Nadeau, secretary-treasurer, all of Montreal.

Dr. Armstrong Installed by Montreal Dental Club

G. D. Armstrong was installed as president of the Montreal Dental Club when that organization held its annual meeting recently. He succeeds P. C. Staples.

Other members of the executive are: H. L. Mussells, president-elect; N. I. Hanna, treasurer; K. C. Bentley, secretary; and A. R. Ramsay, historian-archivist. Named as directors were H. J. Smart, R. W. Faith, Marcel Hébert, E. S. Dorion, L. E. Kent and T. D. Gagnon.

The Montreal Dental Club honoured representatives of the public information media at its recent annual meeting. Eleven press, radio and television personalities were recognized for their "efforts in support of the Montreal Dental Club Fall Clinic in October 1967." Guest speaker at the annual meeting, Mrs. Helen Rochester of the Montreal Star, is shown flanked by MDC past president P. C. Staples (l.) and G. Armstrong, president.



Regional Conventions

3T8 Class Reunion in Toronto May 14

The graduating class of 3T8 from the Faculty of Dentistry, University of Toronto, will hold a 30th anniversary class reunion during the forthcoming Ontario Dental Association convention. A cocktail reception is slated for 5.30 p.m., May 14, at the Royal York Hotel, Toronto. Further information may be obtained from W. K. Shultis, 1 Heath St. W., Toronto 7, Ont.

Canadian Dental Schools

UWO to Honor Dean Ellis

The University of Western Ontario will honour one of Canada's outstanding dental educators at the official opening of the University's new Dental Sciences Building this fall. R. G. Ellis, dean of the Faculty of Dentistry of the University of Toronto, will receive the degree of Doctor of Laws (*honoris causa*) on October 25 in recognition of his many contributions to dental science. Dr. Ellis's honorary LL.D will be conferred during the fall convocation which follows the official opening ceremony for Western's new Dental Sciences Building.

Gordon Nikiforuk, a distinguished Canadian dentist now on the staff of the School of Dentistry at the University of California, Los Angeles, will travel to London to deliver an inaugural public lecture on the evening of October 24.

UWO, with Ontario's second dental school, has a total of 15 students in the two pilot classes of its four-year program leading to the DDS degree. The first class will graduate in 1970.

Leaders in dental education and science

from across Canada will gather in London for two days prior to the official opening of the \$8,430,000 Dental Sciences Building. Western will play host from October 23 to 26 to the inaugural meeting of the newly-formed Association of Canadian Faculties of Dentistry being held in conjunction with the fifth biennial conference on dental research.

Alberta Dean Urges Stepped-Up Student Recruitment

Dean H. R. MacLean of the Faculty of Dentistry, University of Alberta, has called for a more vigorous program of student recruitment throughout Alberta. In a letter to his staff, Dr. MacLean said that the number of qualified applicants, particularly from Alberta, had dropped in the last two years.

Awards and Honours

The Canadian Centennial Medal, conferred in recognition of valuable service to the nation, has been awarded to three dentists. Toronto paedodontist **S. A. MacGregor** is one of the recipients; the others are **J. W. Clay** of Calgary and **H. M. Cline** of Vancouver. A pioneer in dentistry for children in Canada, Dr. MacGregor has been tireless in his efforts on behalf of the Ontario Red Cross and the Toronto Hospital for Sick Children. Drs. Clay and Cline have also long records of service to Canadian dentistry.

G. C. Swann of Calgary has been appointed to the University of Alberta (at Calgary) Board of Governors. Dr. Swann will serve for three years as a representative of the Alberta Dental Association

Congrès national

La réunion du Conseil des Gouverneurs a été avancée

La réunion annuelle du Conseil des Gouverneurs a été avancée d'une demi-heure. Le Conseil se réunira à l'hôtel Vancouver Hilton, à 9 h. du matin, le lundi 24 juin (et non à 9 h. 30 comme nous l'annoncions dans le numéro de mars du Journal).

Un groupe d'experts définira le plan dentaire pour les enfants

Le plan de santé dentaire pour les enfants, proposé par l'Association dentaire canadienne, sera discuté à la réunion annuelle de cette année, à Vancouver, par un groupe d'experts de l'ADC. Cette discussion est prévue pour le vendredi, 28 juin, à 3 h. 30, après le déjeuner de l'ADC au congrès national.

Une équipe choisie par le Conseil exécutif de l'ADC surveille la mise au point de ce plan qui sera soumis au Conseil des gouverneurs, juste avant le congrès national. Ensuite, trois des membres de cette équipe expliqueront le plan aux congressistes et répondront aux questions de l'auditoire qui participera à ce programme spécial. Le groupe d'experts sera dirigé par le président de l'ADC, le programme spécial. Le groupe d'experts sera dirigé par le président de l'ADC, le Dr W. P. Munsie qui prononcera le discours principal. Les autres membres du groupe seront le Président suppléant, le Dr Henri Brouillet et le Dr W. J. Spence, membre du Conseil exécutif de l'ADC.

Principaux événements du congrès

MERCREDI, 26 JUIN

6 h. Cocktail d'inscription

JEUDI, 27 JUIN

- 9 h. Dissertation (La profession dans son ensemble)—G. D. Stibbs, Seattle
- 10 h. Démonstrations cliniques
- 10 h. Pédiodontie et endodontie — C. A. Sweet, Walnut Creek, Californie
- 10 h. 30 Amalgame—Rex Ingraham, Los Angeles
- 10 h. 30 Conférence Grieve Memorial—S. J. Kloehn, Appleton, Wisconsin
- 12 h. Déjeuner offert par le Gouvernement de la Colombie britannique—le premier ministre, l'honorable W. A. C. Bennett
- 2 h. 30 Périodontie—Saul Schluger, Seattle
- 2 h. 30 Endodontie—D. H. Glick, Los Angeles
- 2 h. 30 Médecine buccale—Ferdinando Serri, Pavie, Italie
- 4 h. Prosthodontie — S. C. Robinson, Portland, Oregon
- 4 h. Simplification du travail — Rex Ingraham, Los Angeles
- 6 h. Barbecue au Parc Stanley

VENDREDI, 28 JUIN

- 9 h. Démonstrations cliniques
- 9 h. Occlusion—Rex Ingraham, Los Angeles
- 9 h. 30 Périodontie—Saul Schluger, Seattle
- 10 h. 30 Dentisterie pour adolescents—G. D. Stibbs, Seattle
- 12 h. Déjeuner de l'ADC
- 2 h. Table ronde — Les programmes dentaires préparés
- 2 h. 30 Occlusion—Rex Ingraham, Los Angeles
- 3 h. 30 Colloque de l'ADC un programme dentaire à l'intention des enfants
- 6 h. Une nuit dans la ville chinoise

SAMEDI, 29 JUIN

- 9 h. Démonstrations cliniques
- 9 h. Dentisterie opératoire—G. D. Stibbs, Seattle
- 9 h. Médecine buccale—Ferdinando Serri, Pavie, Italie
- 10 h. Table ronde—occlusion
- 12 h. Déjeuner, réunions annuelles
- 6 h. Le Fiesta du président

L'Association

Le comité des services auxiliaires adopte une résolution portant sur les responsabilités des délégués

Le Comité des services auxiliaires de l'ADC qui a tenu sa réunion annuelle à Toronto, les 18 et 19 janvier, a approuvé une résolution (1) qui réaffirme la responsabilité du dentiste quant aux soins donnés à ses patients et (2) qui précise son droit de déléguer les tâches qui ne demandent pas les connaissances et la compétence d'un dentiste. La résolution précise:

“que le dentiste . . . doit être responsable du niveau et de la qualité des soins

dentaires rendus au public et qu'en assumant cette responsabilité, le dentiste a le droit, sous la surveillance des bureaux d'examens dentaires, de déléguer à des personnes, directement sous sa surveillance et son autorité, les tâches dont l'accomplissement ne demande pas les connaissances et la compétence du dentiste"

La résolution demande aux bureaux provinciaux d'examens de mettre ces principes en vigueur. Elle conseille instamment que la doctrine de la responsabilité finale du dentiste soit énoncée clairement et sans équivoque, et que les services qui peuvent être rendus légalement par le personnel auxiliaire ne soient plus énumérés.

Une autre résolution propose que l'Association canadienne des assistantes et infirmières dentaires étudie les méthodes par lesquelles un programme national d'accréditation soit établi sous l'égide de l'ANCAD. La résolution demande aussi que l'ANCAD étudie avec le Comité des services auxiliaires et le Conseil d'enseignement de l'Association dentaire canadienne, l'établissement d'exigences mini-

mum et de cours officiels de formation pour les assistantes dentaires. Une résolution similaire demande au Conseil d'enseignement de créer un organisme qui reconnaitra officiellement ces cours.

Diapositives sur les carrières dentaires

L'Association dentaire canadienne vient de produire une série de diapositives, en couleur, sur la profession dentaire canadienne. Destiné à l'orientation professionnelle des étudiants, le film illustre les diverses phases de l'enseignement dentaire et les diverses situations dans lesquelles le dentiste pratique sa profession. Le livre de référence qui y est joint explique chacune des photos.

On peut se procurer film et manuel pour la somme de \$3.50 à l'Association dentaire canadienne, 234 St. George Street, Toronto 5, Ont.

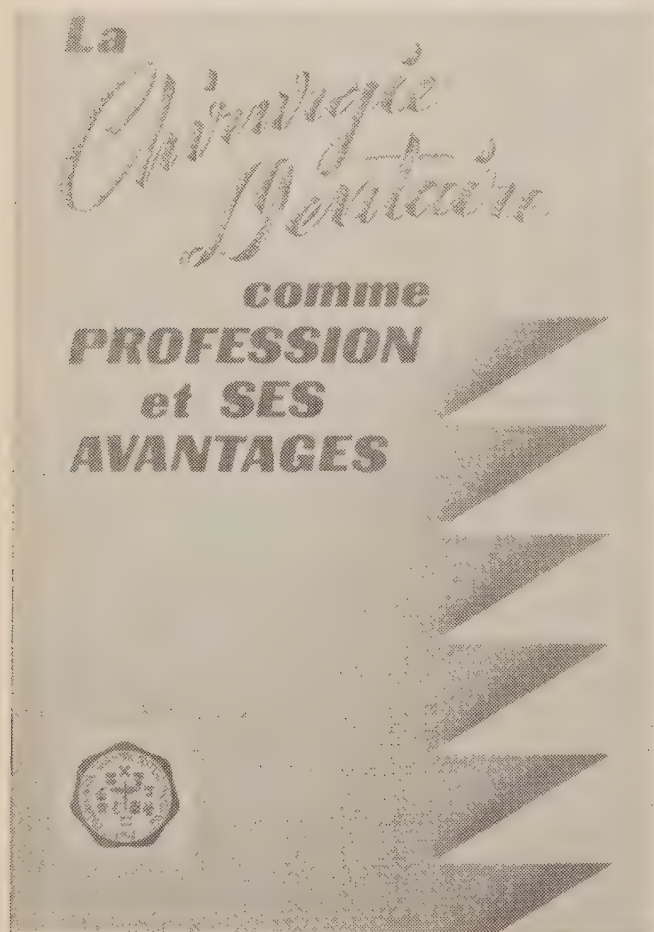
Brochures sur les carrières dentaires

L'Association dentaire canadienne a publié une brochure entièrement révisée sur la profession dentaire et ses avantages. Ecrite à l'intention des élèves des écoles secondaires et des étudiants de l'université, la brochure donne des renseignements sur les débouchés qu'offre la dentisterie, sur les exigences académiques pour l'entrée dans les facultés dentaires, sur les différentes phases de la dentisterie et de la pratique dentaire et sur la rémunération des dentistes. Vous pouvez vous en procurer des exemplaires, au prix de 16 cents (le premier exemplaire-échantillon est gratuit) auprès de l'Association dentaire canadienne, 234 St. George Street, Toronto 5, Ontario.

Canada

Caulk et Dentsply encouragent l'enseignement dentaire

Le doyen J. D. McLean, président du Conseil d'administration du Fonds canadien pour l'enseignement dentaire a an-



Nouvelle brochure sur les carrières en chirurgie dentaire.

noncé que Caulk-Canada et Dentsply Canada Limited avaient donné \$5,000 pour aider le Fonds à établir son siège social et son personnel. Cette somme fut remise le 8 février, par G. H. Tobey, président de Caulk-Canada. Ce montant complète le subside de \$15,000 accordé au Fonds par la Dentists' Supply Company, de York, Pennsylvanie. Cette maison américaine l'un des principaux fabricants de dents artificielles et d'équipement dentaire, est affiliée aux deux firmes canadiennes.

Le Fonds canadien, pour l'enseignement dentaire a été organisé il y a cinq ans, pour aider à accroître la compétence des professeurs, promouvoir la recherche dentaire et aider les étudiants, en leur fournissant des prêts sans intérêt.

Chronique internationale

Souhaits de l'ADC à l'occasion du 20e anniversaire de l'OMS

L'Organisation mondiale de la santé célèbre, cette année, le vingtième anniversaire de sa fondation. Pour marquer cet événement, le président de l'ADC, le Dr W. P. Munsie, a envoyé le message suivant à Genève, au directeur général de l'OMS, le Dr M. G. Candau:

Le président, les directeurs et les membres de l'Association dentaire canadienne désirent présenter à l'Organisation mondiale de la santé, à l'occasion de son vingtième anniversaire, ses cordiales félicitations pour la contribution importante qu'a apportée l'Organisation à la santé mondiale et ses meilleurs vœux pour un avenir encore plus fructueux. L'Association dentaire canadienne a particulièrement conscience des efforts faits par l'Organisation mondiale de la santé pour faire reconnaître la santé dentaire comme partie intégrale de la santé générale et des projets destinés à améliorer la santé dentaire de tous les peuples du monde. Ces activités, ainsi que beaucoup d'autres contribuant à la santé mondiale, sont dignes d'admiration.

Les délégués de la FDI n'auront pas besoin de visa pour la Bulgarie

Les dentistes canadiens qui se rendront cette année, du 17 au 24 septembre, à la réunion annuelle de la Fédération dentaire internationale, à Varna, Bulgarie, pourront entrer dans le pays et en sortir jusqu'à la fin de 1968, sans avoir besoin de visa bulgare. Cette exemption est destinée aux touristes étrangers de n'importe quel pays qui passent plus de 24 heures et moins de deux mois en Bulgarie. Les touristes qui restent en Bulgarie moins de 24 heures et dont la visite est organisée par le Comité national bulgare pour le tourisme, ont droit au même privilège. En sont exclus, les étrangers

L'Association Dentaire Canadienne

sollicite des demandes pour le poste de

REDACTEUR-ADJOINT

Il s'agit d'un travail à quart de temps qui sera attribué à un dentiste francophone du grand Montréal ou de Québec. Travaillant de concert avec le rédacteur il sera responsable de la préparation des textes français qui sont publiés dans le *Journal de l'Association dentaire canadienne*.

Ses responsabilités comprendront la mise au point des articles de fond, la rédaction des éditoriaux de même que certaines responsabilités relative à la traduction des nouvelles et des textes techniques.

Au moment de l'attribution de cette fonction on tiendra compte des dispositions qu'a le candidat pour écrire et se servir du Français et de l'Anglais.

Les demandes accompagnées d'un résumé des qualifications du candidat doivent parvenir par écrit au:

**Comité de sélection du Conseil du Journalisme de l'ADC,
a/s Dr Georges Pelletier
2150 rue Crescent
Montréal 25, Qué.**

Pour tout renseignement additionnel bien vouloir communiquer avec le Dr Pelletier.

en transit, les membres des corps diplomatiques, commerciaux ou autres, les vendeurs étrangers et les étudiants qui suivent des cours dans les universités bulgares.

Demande de démonstrations cliniques pour la réunion de la FDI à Varna

Les dentistes canadiens qui sont membres de la Fédération dentaire internationale ont été invités à participer au programme de démonstrations cliniques, à la réunion annuelle de la FDI qui aura lieu à Varna, Bulgarie, du 16 au 22 septembre. Les intéressés devront offrir leurs services au Secrétaire du comité scientifique bulgare de la FDI, Case postale 1117, 8 rue Belo More, Sofia, Bulgarie, avant le 1er mai. La demande devra donner une brève description de la démonstration clinique proposée ainsi que le nom de la personne et la liste de ses diplômes. Les dentistes, dont les offres seront acceptées, en seront avisés avant le 15 juin.

L'American Academy of Periodontology se réunira à New York du 16 au 19 juin

Les périodontistes et les dentistes non spécialisés qui s'intéressent à la Périodontologie ont été invités à la réunion de printemps de l'American Academy of Periodontology qui se tiendra du 16 au 19 juin, au New York Hilton Hotel, à New York.

Les réunions scientifiques auront lieu du 17 au 19 juin, avec inscription le 16. L'une des particularités du programme scientifique sera l'organisation d'un séminaire d'étudiants gradués. On a également prévu dans le cadre de ce programme, le concours pour le prix Orban, destiné aux étudiants du troisième cycle.

Les droits d'inscription sont de \$50 sauf pour les membres de l'AAP et les étudiants qui seront admis gratuitement.

Congrès de radiologie au Chili en août

Les radiologistes dentaires canadiens ont été invités à assister au premier congrès

international sur la radiologie dentaire et maxillofaciale qui se tiendra à Santiago, Chili, du 15 au 17 août. Vous pouvez obtenir de plus amples renseignements en écrivant au Comité Organizador y Ejecutivo del I Congreso Internacional de Radiologia Dento-Maxillo-Facial de Chile, Calle Miraflores 590, Santiago, Chile.

Journées dentaires internationales de Paris

Les Journées dentaires internationales de Paris auront lieu cette année du 25 novembre au 1er décembre. Parmi les sujets au programme, on remarque le traitement des enfants, l'orthopédie dento-faciale, l'organisation pratique dentaire, l'endodontie, l'hygiène bucco-dentaire, la chirurgie, la paradontologie et la prothèse.

On a de plus prévu quatre séminaires d'une durée d'une journée chacun devant porter sur les paradontopathies, la prothèse, l'endodontie et la céramique.

Des communications libres, des démonstrations pratiques et des cliniques télévisées compléteront le programme.

On a aussi prévu de nombreuses festivités qui permettront aux congressistes de se distraire.

Pour renseignements supplémentaires, veuillez communiquer avec le Secrétariat général des JDIP, Maison de la Chimie, 28 rue St-Dominique, Paris 7e.

Organismes dentaires

La Manitoba Dental Association a voté une augmentation du prix de la licence

La Manitoba Dental Association a voté une augmentation du prix de la licence qui passe de \$140 à \$150. Cette augmentation de \$10 est en relation directe avec l'offre d'augmenter de \$40 à \$50, le subside par membre à l'Association dentaire canadienne. Ces décisions ont été approuvées au congrès annuel de la MDA qui s'est tenu à Winnipeg, le 20 janvier.

L'association Manitobaine est le cinquième organisme dentaire provincial qui

ait pris une telle décision. Le College of Dental Surgeons de la Colombie britannique, l'Alberta Dental Association, le College of Dental Surgeons de la Saskatchewan et la Prince Edward Island Dental Association ont déjà offert d'augmenter leurs subventions à l'ADC.

Réunion de l'Académie des sciences dentaires le 5 mai

L'Académie canadienne des sciences dentaires organisera une réunion au Centre social de l'Université de Montréal, le 5 mai 1968. Le Dr I. L. Feinchnider traitera des "Implants". Le Dr R. Rothhaar a choisi comme sujet de son exposé, "New Concepts in Preventive Dentistry". Pour tout renseignement, écrire au Dr Germain Auger, 143 rue Radisson, Trois-Rivières, Qué.

Recherche

Les aliments chauds contractent les obturations d'amalgame

Au US National Institute of Dental Research on a constaté qu'une chaleur modérée accélère les changements que subissent les amalgames dentaires. La chaleur produit une contraction de l'espace intermoléculaire, qui explique l'infiltration périphérique.

Les principaux alliages utilisés pour les amalgames sont: l'argent et l'aluminium, l'argent et le mercure et l'aluminium et le mercure. L'examen des défractions aux rayons-x a permis de découvrir une nouvelle phase (beta-1) de mélange argent-mercure. Son espacement moléculaire est compact et hexagonal, alors que la phase gamma, observée précédemment, le montre cubique et moins serré.

Les deux phases beta-1 et gamma-1 se produisent à la température intérieure ambiante. La phase gamma-1 prédomine quand les particules d'argent et de mercure sont broyées et pressées ensemble à la température ambiante, comme c'est le

cas quand on prépare un amalgame pour une obturation. La phase beta-1 augmente considérablement si l'amalgame est poli à sec ou si la surface de l'amalgame est échauffée. Si l'on entropose l'amalgame une semaine à 60°C, la phase originale pendant gamma-1 se transforme rapidement en phase beta-1 à partir de la surface et en allant vers l'intérieur.

Le changement de la phase gamma à la phase beta contracte les cellules ou les groupes de molécules qui forment un amalgame aéré, le rendant plus poreux de 5 pour cent. Ce changement structural se produit pendant les expériences à la température des aliments chauds dans la bouche; il peut, avec le temps, provoquer la détérioration de l'amalgame et produire éventuellement des fissures autour de l'obturation.

Fluoration

Équipement de fluoration pour la ville de Québec

Les nouvelles canalisations d'eau de la ville de Québec seront munies de l'équipement nécessaire à la fluoration. Le comité exécutif de la ville a pris cette décision le 7 décembre 1967 et a demandé au département des eaux, de préparer des plans et devis. Cette résolution est conforme aux recommandations faites par le Chef du service santé de la ville, le Dr Jacques Roussel et par le directeur des laboratoires de santé publique, M. Dominique Gauvin.

M. Gauvin estime que le coût initial de l'équipement se montera à environ \$15,000 et que les frais de gestion annuels seront de l'ordre de \$20,000. Le Dr Roussel a déclaré que le gouvernement de la Province paierait peut-être une partie de l'équipement.

Le président de la société dentaire du Québec, le Dr Yves Poulin a félicité les autorités municipales de cette initiative. La Société va chercher maintenant à faire approuver la fluoration dans d'autres villes aux environs de Québec.

Appareils orthodontiques amovibles

C. P. Adams. Paris, Masson et Cie, 1967. 170 p. Illustré. 64F

Il s'agit d'une traduction française du livre du docteur Adams publié pour la première fois en anglais en 1955.

Cet ouvrage est le livre de chevet de la plupart des étudiants gradués en orthodontie. C'est un volume technique qui décrit avec précision et avec de nombreuses illustrations la confection d'appareils amovibles. On y décrit des exercices de technique auxquels tous les débutants doivent consacrer de nombreuses heures avant de maîtriser les techniques de pliage des fils et les principes de base qui régissent la confection des crochets et des ressorts en orthodontie.

Cet ouvrage ne se veut pas un ouvrage de diagnostic; c'est un livre de base de technique orthodontique. Même si les appareils qui y sont décrits sont très efficaces et d'un emploi utile dans les cas appropriés, ils n'auraient toutefois aucune valeur pour le praticien qui ne serait pas averti. Ainsi, on décrit plusieurs appareils devant servir à distaller ou mésialiser certaines dents. Encore faut-il que l'opérateur sache si la dent en question peut être bougée et s'il y a lieu de le faire.

Le livre du docteur Adams, employé depuis longtemps dans plusieurs universités comme livre d'enseignement de technique, vient d'être placé encore plus à notre portée grâce à cette traduction française. Tout dentiste habitué à faire de l'orthodontie ou des mouvements mineurs, peut y trouver de nombreuses idées valables.

Claude Baril

The Business Management of Dental Practice

Harvey Sarnier. Philadelphia and London, W. B. Saunders Company, 1966. (Available from McInsh & Co. Limited, Toronto) 222 p. \$8.10

Si le dentiste, au sortir de l'université, est bien préparé à rendre des services professionnels, il est par contre assez ignorant de tous les aspects légaux reliés à sa pratique dentaire. Le livre de Harvey Sarnier offre

aux dentistes l'occasion de se renseigner sur une foule de situations pouvant se présenter dans leur bureau et qui comportent des aspects légaux.

L'auteur est un avocat, secrétaire et conseiller juridique de l'Association dentaire américaine. Ce n'est donc pas un dentiste qui parle, mais un homme spécialisé dans les questions légales, mieux encore, dans les questions légales reliées à la profession dentaire.

Dans ce volume conçu pour être avant tout pratique on n'a pas cherché à développer une philosophie de l'administration de bureau; on ne veut pas nous enseigner "pourquoi" administrer notre bureau, mais surtout "comment" le faire.

C'est ainsi qu'on trouvera en annexe à plusieurs chapitres des modèles de différentes formules: des modèles de lettres de collection, de contrats entre dentistes désirant s'associer, de contrats d'achat d'équipement, de vente d'une pratique dentaire, etc.

Le volume nous renseigne sur la tenue de livre, l'envoi des comptes, l'éthique et les cas de négligence professionnelle, à responsabilité légale, l'engagement de personnel auxiliaire, les différentes formes d'association entre dentistes et les arrangements à faire dans chaque cas de même que bien d'autres sujets pertinents à l'administration de bureau.

Nul doute que le dentiste désireux de donner à ses soins professionnels le soutien d'un bureau bien organisé, trouvera profit à consulter le volume de M. Harvey Sarnier.

Roger Grégoire

Premedication, Local and General Anesthesia in Dentistry

N. B. Jorgensen et Jess Hayden, Jr., Philadelphia, Lea & Febiger, 1967. 149 p. Illustré. \$8.25

Dans cet ouvrage de 150 pages, l'auteur a tenté de résumer pour l'étudiant dentaire et le praticien, trois méthodes de contrôle de la douleur, soit la médication pré-opératoire, l'anesthésie locale et générale. Il a partiellement réussi si l'on considère l'ampleur du sujet. L'accent est porté surtout sur l'anesthésie locale. La médication pré-opératoire

et l'anesthésie générale n'ont été que légèrement touchées.

L'auteur a su rendre très intéressante la partie sur l'anesthésie locale en lui donnant un aspect simple et nouveau. Les techniques d'injection sont expliquées clairement à l'aide de dissections anatomiques, malheureusement absentes dans la majorité des ouvrages portant sur ce sujet. Une technique rationnelle de tronculaire à l'épine de Spix y est discutée de façon claire. Elle montre les désavantages de la technique d'approche directe recommandée dans plusieurs traités d'anesthésie locale.

Cependant l'ouvrage se distingue tout particulièrement par l'inclusion de deux sujets très importants et rarement étudiés dans la

majorité des livres de ce genre. Tout d'abord, l'auteur nous donne au chapitre 1, une bonne revue des systèmes et des différents signes pathologiques qui l'accompagnent. Ces quelques huit pages devraient être connues en détail par tout praticien. Enfin la partie qui traite de l'aspect psychologique de la pratique dentaire est écrite par un psychiatre. Elle porte sur l'anxiété éprouvée par le patient dentaire et sur les différents caractères émotionnels.

En résumé, ce livre écrit par plusieurs col-laborateurs nous montre le contrôle de la douleur sous un aspect différent à la lumière des connaissances récentes.

Paul Mercier

Dental Roentgenology

L. M. Ennis, H. M. Berry and J. E. Phillips. Ed. 6. Philadelphia, Lea & Febiger, 1967. (Available from The Macmillan Company of Canada Limited, Toronto) 740 p. Illus. \$22.00

The sixth edition of this well known textbook on dental radiology has been completely reorganized and updated with the assistance of a new co-author, J. E. Phillips, assistant professor of roentgenology, School of Dental Medicine, University of Pennsylvania.

The material has been rearranged into three major sections: radiations (nature, effects, production, control); radiography (techniques for producing radiographs); and radiographic interpretation. The reorganization makes for a more orderly presentation of the material as well as quicker and easier access to the subject matter. Terminology has been modernized and clarified. Some illustrations have been withdrawn and new ones added. Intra-oral techniques are fully and objectively discussed.

The chapter on Special Roentgenographic Technique has been expanded and updated. Panoramic radiography is thoroughly discussed with brief descriptions of thermography, laser radiation, ultrasonic echograms, laminagraphy and isotopic radiography.

The chapter on Radiographic Indications of Systemic Disease adds to the usefulness of the book and reflects the growing appreciation of a broader, less restrictive view of dental radiology. The jaws should not be considered as distinct from the rest of the body from a pathological viewpoint, and I would like to see even greater emphasis on the correlation between the changes produced by disease and the radiographic appearance.

Much useful information on duplication of radiographs, slide making and prepara-

tion for publication is included in the final chapter. Extensive references, especially in the new sections, serve as a guided reading list.

The radiographic reproductions in the review copy do not attain the standard of illustrations in the fifth edition. This may be due to a difference in the quality of the paper or printing process used. A few illustrations are inverted, but notwithstanding these minor flaws, the book is a valuable source of information for the interested reader. It is not surprising that a 20 per cent increase in content has raised the price by 50 per cent as compared to the previous edition.

D. W. Stoneman

The Business Management of Dental Practice

Harvey Sarner. Philadelphia and London, W. B. Saunders Company, 1966. (Available from McAinsh & Co. Limited, Toronto) 222 p. \$8.10

Harvey Sarner has very successfully put together a book on just about everything a dentist needs to know with respect to law and the practice of dentistry. Needless to say, the law that he refers to is American jurisprudence; however, in many cases this differs very little from our own. Chapters that deal entirely with American laws, such as the one on federal income taxation, are interesting to read because they afford the opportunity of comparing the problems of our American confrères in this field with our own.

It is my opinion that this book should be on the compulsory reading list for all senior undergraduates in dentistry. Many misunderstandings with other dentists, landlords and patients can be minimized or prevented if the dentist is apprised of the pitfalls that

he may encounter. I particularly liked the samples of model contracts that are presented; while they are not intended as substitutes for competent legal advice they could be of assistance to a lawyer who might not be fully acquainted with all aspects of the law insofar as the practice of dentistry is concerned. No doubt every dentist hopes that the most serious legal problem ever to confront him will be a parking ticket; however with the definite escalation of malpractice claims, the complications of incorporation law, other tax laws, property law and insurance, it is the fortunate dentist who will not at some time require legal advice. I have nothing against lawyers but I consider it just as important for a dentist to practise preventive 'legalitis' as preventive 'periodontitis.' This book is an excellent aid for the former.

K. F. Pownall

The Essentials of Oral Anatomy

J. H. Scott. *Edinburgh and London, E. & S. Livingstone Limited*, 1967. (Available from *The Macmillan Company of Canada Limited, Toronto*) 88 p. \$1.50

I agree with the author who terms this publication as a very handy pocket type manual that one can consult while waiting for a boy friend or a girl friend. This is a very well compiled book of descriptive and functional anatomy. It is useful as an 'aide-memoire' for clinicians and for graduate students who desire to refresh their notions of anatomy.

The subject matter, divided into seven chapters, covers development of the dentition, the dento-alveolar complex, bone and bones, the growing face, joints and muscles, blood vessels and nerves, and the oral cavity. The main emphasis is on functional anatomy. The relevant structures are de-

scribed in a very simple, concise and comprehensive manner. The judicious use of bold face type enhances the clarity of the text. The inclusion of the fourth chapter on the growing face is very important, especially for students in orthodontics or physical anthropology who may be interested in growth and development. The tables in the appendix are also very useful for quick reference.

This book may be recommended as a supplement to all standard anatomy textbooks for students in anatomy and especially for students in dentistry.

A. Demirjian

Fractures of the Mandible

H. C. Killey. *Bristol, John Wright & Sons Limited*, 1967. (Available from *The Macmillan Company of Canada Limited, Toronto*) 68 p. illus. \$2.50

This fifth dental practitioners' handbook presents an outline of the diagnosis and treatment of fractures of the mandible. It is an excellent synopsis of the subject and credit must go to the author for attaining his objective within 55 pages. The concise presentation includes chapters on postoperative care and complications together with an excellent bibliography for further detailed reference. The book is invaluable for quick reference by those called upon to treat fractures of the mandible; it avoids the detail of a more comprehensive text. Although North American readers will find cast metal cap splints mainly of academic interest, many other methods of immobilization are presented. All practitioners with a hospital affiliation should obtain this handbook which is published at the popular price of \$2.50. As indicated in the preface, it is not intended for the specialist oral surgeon.

A. G. Parnell

Medicare Increases Interest in Dental Plans • The *Mercer Actuarial Bulletin* (February 1968) reports that in anticipation of the release of premiums now paid for medical insurance, "for the past year, both labour and the general public have expressed strong interest in such benefits as extended health and dental care plans."

A stronger CDA costs seven more cents a day

The Canadian Dental Association stands in a unique position as the organization best fitted to help dentists in all parts of the nation. The Association has a major role in giving the profession a means of leadership in serving the dental needs of our country. It must remain strong, flexible and solvent if it is to continue this role; otherwise it will fail in its mission.

Since its founding 66 years ago, the CDA has matured into a dynamic and vital force in the affairs of Canadian dentistry. As the Association grew in stature, it expanded the scope of its interests on behalf of the public and the profession. This is reflected by the numerous and varied activities described in a special report from the Executive Council which appears elsewhere in this issue. The money to pay for these services comes from two sources. Members now are contributing 91 per cent of the CDA's income through the \$40 per capita grants advanced by the ten corporate members. The remainder comes from the sale of publications, journal advertising and subscriptions, national conventions and other sources. Since this portion of the Association's income is unlikely to increase in the foreseeable future, corporate member contributions will continue to be the major source of support for the CDA.

Four recent deficit budgets with concomitant curtailment of several worthy programs have exposed the inadequacy of this support. It is quite apparent that programs necessary to serve the needs of the members cannot be conducted effectively without adequate financing. It is equally apparent that adequate financing is impossible on the basis of the existing contributions from the corporate members. Hobbled by a grant devised nine years ago when prices and wages were much lower than they are today, the CDA must struggle with costs that spiral three times faster than its income. No enterprise can flourish under such a handicap; it must either replenish its coffers or trim its sails.

Further retrenchment would undoubtedly weaken the Association and impair its work at a critical time when dentists need a strong national voice as never before. The Executive Council has therefore proposed bold and imaginative measures in order to fortify the CDA so that it may better serve and benefit its members. Central to the design is the proposal to enlarge committees and councils, thereby giving all the corporate members representation on the important working arms of the Association. This alone would greatly strengthen relations between provincial groups and the national association and would improve the effectiveness of both. The Executive Council also envisages the initiation of a government relations department as well as intensification of infor-

mation and public relations services. If these proposals have a familiar ring, it is because they have been repeatedly requested by the Board of Governors but could not be implemented for lack of money.

The Executive Council is convinced of the necessity for providing a more generous income if the CDA is to continue its work and growth. The Council has therefore recommended that corporate member grants be raised by \$25 in 1969 so that the Association may acquire the necessary supporting resources and facilities. The requested increase, the first in nine years, would cost each member less than seven cents a day—surely a modest sum by today's standards. The Canadian dentist is well rewarded for his services to society. This is as it should be. Will he now, in return, sustain his own association so that it may discharge its responsibilities in a manner consistent with dentistry's place in society?

Une Association dentaire canadienne plus forte pour sept cents de plus par jour

L'Association dentaire canadienne se trouve dans une position unique: c'est l'organisation la mieux équipée pour aider les dentistes de toutes les régions du pays. L'association joue un rôle de premier ordre en donnant à la profession une ligne de conduite qui lui permettra de répondre aux besoins dentaires de notre pays. Elle doit demeurer forte, souple et solvable si elle veut continuer à remplir ce rôle; autrement elle ne pourra pas accomplir sa mission.

L'ADC a progressé depuis sa fondation, il y a 66 ans. Elle est maintenant une force dynamique et vitale au service de la dentisterie canadienne. Au fur et à mesure que le prestige de l'Association s'est accru, elle a étendu le champ de ses activités au service du public et de la profession. Ses entreprises nombreuses et variées en témoignent. Elles sont exposées dans un rapport spécial préparé par le Conseil exécutif et publié ailleurs dans ce numéro. Les fonds nécessaires à ces entreprises proviennent de deux sources. Les membres fournissent 91 pour cent du revenu de l'ADC, sous la forme d'un subside de \$40 par personne, que paient les dix associations membres. Le solde provient de la vente de publications, de la publicité du Journal, des abonnements, des congrès nationaux et autres. Comme cette portion du revenu de l'Association a peu de chance d'augmenter dans un avenir prochain, la contribution des associations membres continuera à être la source de revenu principale de l'ADC.

Les quatre derniers budgets déficitaires ont compromis la réalisation de plusieurs projets importants et ont démontré l'insuffisance de cet appui. Il est évident que les entreprises nécessaires aux besoins des membres ne peuvent pas être menés à bien sans les fonds suffisants. Il est évident aussi qu'un financement sain est irréalisable avec les contributions actuelles des membres. Avec des subsides fixes, établis il y a neuf ans, alors que les prix et les salaires étaient beaucoup plus bas qu'ils ne le sont aujourd'hui, l'ADC doit faire face à des dépenses qui augmentent trois fois plus vite que son revenu. Aucune entreprise ne peut prospérer avec un pareil handicap, elle doit remplir ses coffres ou réduire ses activités.

D'autres réductions affaibliraient l'Association et nuiraient à son œuvre, surtout en ce moment car les dentistes ont besoin plus que jamais de se faire entendre à l'échelle nationale. Le Conseil exécutif a proposé, par conséquent,

des mesures audacieuses et originales pour fortifier l'ADC et lui permettre de mieux servir ses membres. L'idée directrice est exprimée dans la proposition visant à élargir les cadres des comités et conseils, donnant ainsi à toutes les organisations membres, une voix dans tous les groupes de travail de l'Association. Ceci renforcerait beaucoup les relations entre les groupes provinciaux et l'association nationale, tout en donnant plus d'efficacité aux uns et aux autres. Le Conseil exécutif envisage également d'établir un service de relations gouvernementales ainsi que d'intensifier les services d'information et de relations extérieures. Si ces propositions ont quelque chose de familier, c'est que le Conseil des Gouverneurs les a déjà faites à différentes reprises mais qu'elles n'ont pas pu être mises en vigueur, faute d'argent.

Le Conseil exécutif est convaincu de la nécessité d'un revenu plus important si l'ADC doit continuer à accomplir sa tâche et à se développer. Le Conseil a recommandé par conséquent, que les subsides des associations membres soient augmentés de \$25 en 1969 pour que l'Association puisse disposer de ressources et d'installations suffisantes. Cette augmentation, la première qui soit demandée en neuf ans, coûterait à chaque membre moins de sept cents par jour, ce qui est certainement négligeable aux prix d'aujourd'hui. Le dentiste canadien est dûment rémunéré pour les services qu'il rend à la société. Et cela est bien. Est-il prêt, à son tour, à soutenir son association pour lui permettre de faire face à ses responsabilités, conformément à la place qu'occupe la dentisterie dans la société?

letters • courrier

Children's Dental Health Plan

To the Editor:

For the past 10 years I have lectured widely on paedodontics and preventive dentistry throughout western Canada. My travels have kept me closely associated with dentists in rural and urban areas. Many are former students of mine who do not hesitate to inform me about their views on the state of our profession. I have urged these men to make their views known to our Association, particularly with regard to a dental care plan for Canadian children.

Dental educators often complain that the average dentist is not remotely interested in anything beyond the four walls of his little office. But this kind of office is becoming obsolete in western Canada where larger multi-chaired offices are being built at considerable financial outlay. Their owners are

no longer confined to the premises; they are moving into the community in growing numbers to address home and school groups and municipal councils on dental health and fluoridation. Moreover, they maintain excellent communication with their medical colleagues.

Dental officials also deplore the fact that dentists do not want to use auxiliaries. This is just not so. Multi-chaired offices are frequently staffed by auxiliaries that the dentists have had to train themselves. These practitioners say: "We are told to use trained auxiliaries, but where do we get them? Practically every hygienist who graduates goes to work in the city . . . and there is no hope of getting one for outlying areas." These facts cannot be ignored.

Now that a national dental care plan for children is being formulated, we must put our priorities where they will do the most good — in prevention and education. Dentists in widely scattered rural areas tell me about the growing demand for their services. We must inform them about the unquestioned benefits of available preventive dental measures. The combined use of a fluoride-containing prophylactic paste, a topical application of a fluoride solution and a commercial fluoride tooth paste will reduce caries by more than 60 per cent, and by more than 80 per cent if the water supply is

fluoridated. This is far more effective than plans based on training New Zealand-type dental nurses. It took New Zealand 40 years to attain a ratio of one dental nurse for every 500 school children. In fact, New Zealand was unable to master dental caries until the country began to benefit from water fluoridation. The New Zealand approach, with its emphasis on treatment, will not reduce dental disease rates in Canada. It will be costly and will divide a profession which, during the past 15 years, has trained its members in the concept of total dental care for children.

We will need more dental hygienists once the facts of preventive dentistry are fully driven home. We must therefore devise a crash program of six months' training to help experienced dental assistants learn the technical aspects of dental hygiene. These programs need not undermine existing dental hygiene programs. We will continue to need dental hygienists to instruct school children, to direct mass programs of self-applied preventive agents, and to supervise the dental hygiene technicians I envision.

We must also bring the latest facts of preventive dentistry to the profession regardless of the cost. An example was provided by the Manitoba Dental Association which last year purchased multiple topical fluoride kits for each of its members at a cost of \$10 a kit. This was done in order to encourage more widespread use of multiple topical fluoride therapy.

Finally, we must devise practical methods for increasing dental hygiene services. Schools of dental hygiene should train twice as many dental hygienists as the number of dental students being graduated. This is impossible, simply because we are competing with other disciplines for a limited number of potential women students. We can, however, train experienced dental assistants in the technical aspects of dental hygiene. It is quite possible that the total output of our present schools of dental hygiene would then be required for this training program alone.

And what about dental therapists developed by the Canadian army and also under study by the US Public Health Service? They deserve consideration, but at a lower level of priority until our personnel needs in preventive dentistry are adequately satisfied.

We also urgently need at least three to five more dental schools. These should be planned right now because it takes up to five years from the time a new dean is appointed until a new school becomes a reality.

Overspending by all branches of government and the spiralling cost of living and taxation may delay the introduction of a children's dental care plan for some time. This gives us a golden opportunity to increase the scope of preventive services. The

cost is not high, the benefits are phenomenal, and they will gain the admiration of the Canadian public.

C. R. Castaldi, DDS, MSD, FRCD (C),
Professor of paedodontics,
University of Manitoba,
P.O. Box 132, St. Norbert, Man.

The foregoing is a condensation of a more extensive letter received from Dr. Castaldi. (Ed.)

Growth and Development Study in French Canadian Children

To the Editor:

I read with interest the article by Arto Demirjian in the February issue of the Journal entitled "Recherches sur la croissance cranio-maxillo-faciale et somatique de l'enfant canadien-français." It is unfortunate that a simultaneous English translation of the entire article was not included. The omission of a simultaneous translation of a research report which is of international interest can only complicate the process of communication, a problem to which you alluded in your editorial in the same issue.

There is another important problem in not including simultaneous English translation. Financial support for this study involves tens of thousands of dollars and the granting agency will be referring annual progress reports of this work to consultants who must assess its merit and decide whether further support is justified. Reference to Dr. Demirjian's article in the Journal will undoubtedly be made by the investigators in an annual report. Since the reviewers are more likely to be familiar with English than any other language, the investigators might be mistakenly penalized by a reviewer who may not be very familiar with French. This would be regrettable.

May I therefore suggest that any French article reporting research supported by a grant from the Government of Canada automatically include an English translation. One could argue that simultaneous French translation should also accompany comparable research reports submitted to the Journal in English. I would certainly support such a policy to help improve communication between Canadian dentists as well as for international reasons.

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We appreciate and will try to accede to Dr. Castaldi's recommendations insofar as the economics of publishing and space will permit. (Ed.)

P. T. Smylski,* DDS, FRCD(C) and G. K. Hurd,† DDS, Toronto, Ont.

Osteomyelitis of the mandible in an alcoholic patient: case report

Osteomyelitis of odontogenic origin is nowadays rare. Nevertheless, dental infection is still the commonest cause of osteomyelitis of the jaws. The authors describe the case of a 54 year old alcoholic patient whose initial dental infection progressed to a masticator space abscess and eventual osteomyelitis with pathological fracture of the mandible. Despite three separate hospital admissions, the patient's procrastination in obtaining early treatment and his failure to adhere to postoperative medication and follow-up appointments aggravated the course of the disease before its eventual resolution.

L'ostéomyélite d'origine odontogénique est rare de nos jours. Néanmoins, l'infection dentaire demeure la cause la plus fréquente de l'ostéomyélite des mâchoires. L'auteur décrit le cas d'un patient alcoolique de 54 ans; l'infection dentaire initiale avait produit un abcès de l'espace masticatoire et éventuellement une ostéomyélite avec fracture pathologique du maxillaire inférieur. En dépit de trois séjours à l'hôpital, l'état du malade s'aggrava parce qu'il avait retardé avant de se faire traiter, qu'il négligea de prendre sa médication post-opératoire et ne se rendait pas aux rendez-vous médicaux subséquents. Malgré tout on parvient à faire guérir la lésion.

Osteomyelitis is an inflammation of bone caused by a pyogenic organism.¹ It may be localized or may spread to involve the marrow, cortex, cancellous tissue and periosteum. The usual exciting cause is *Staph. aureus*. Less frequently associated are *Staph. albus* and occasionally streptococci, pneumococci and typhoid bacilli. In children and adolescents osteomyelitis is often due to haematogenous infection. In the adult, however, haematogenous in-

fection is rare, the disease being most likely introduced from without.²

Dental infection is still the commonest cause of osteomyelitis of the jaws.^{3,4} Fortunately, its occurrence is rare despite the frequency of dental sepsis. Thanks to antibiotics, osteomyelitis is no longer a violent infection with severe systemic complications.⁴ The hazard of osteomyelitis is nevertheless an ever present possibility as the following case report shows.

Infections of odontogenic origin are generally walled off and therefore do not spread in bone. It is disorganization of a protecting pyogenic zone which provokes osteomyelitis. Among the factors which cause this disorganization are injudicious curettage of suppurative lesions, operative trauma by which the highly pyogenic organisms are introduced into normal tissue, and failure to drain a dental abscess enclosed in bone by removal of the offending tooth. These factors, in combination with lowered host resistance, set the stage for osteomyelitis. Tooth extraction, as Thoma points out, is frequently the exciting factor in osteomyelitis, but the disease may also develop from dental infections if the teeth are not removed.⁴

Acute osteomyelitis in the adult is due to the liberated toxins which may kill the osteogenic tissue, or to extension of the disease which may interfere with blood circulation in a section of bone which then dies.⁴ Vulnerable are the alveolar process, with or without teeth, the coronoid or condyloid process, the angle of the jaw, or the entire posterior part of the ramus.⁴

PATHOGENESIS

Infection travels along the blood vessels and lymphatics in bone. The Haversian vessels connect the vascular bed of the interior of the dense bony structure with the vessels of the periosteum. These channels also communicate with the canalicular structure of the calcified portions of the bone, being essential to the nutrition of bone cells. Inflammation in the Haversian system causes apposition of endothelium of the vascular walls, resulting in occlusion and thrombosis. Blood, consequently, cannot reach the bone cells, normal metabolism of the cells then ceases, and the bone cells die.^{3,5}

RADIOGRAPHIC APPEARANCE

Worth contends that the radiographic appearance of osteomyelitis partly depends on the phase of the disease at which the radiographs are made. The amount

of calcific material removed is insufficient to produce visible changes until 8-10 days have elapsed. As more and more ionized calcium is mobilized by the osteolytic process it is precipitated in the devitalized bone which becomes increasingly radiopaque.⁶

The earliest radiographic changes show diminished density and slight blurring of the trabeculae in the affected region. There is a slight increase in radiolucency as the trabeculae become thinner. They soon lose their continuity giving way to frank bone destruction which usually appears as an irregular radiolucent area. There may be one or several areas of bone destruction separated by what looks like normal bone. Such islands of normal or near-normal bone separated by areas of bone destruction are highly suggestive of osteomyelitis.

CLINICAL APPEARANCE

Osteomyelitis is marked by deep persisting pain, occasionally accompanied by intermittent paraesthesia of the lip.⁴ There is usually oedema of the overlying soft tissues and an accompanying periostitis. The patient may ultimately exhibit malaise and an elevated temperature. The condition may progress until infection penetrates the cortical bone and invades the soft tissues, causing induration followed by abscess formation.⁶

Case Report

FIRST ADMISSION

Our patient, a 54 year old man, came to the Emergency Department of the Toronto General Hospital for the first time on March 2, 1966. He complained about a swelling in his left mandible and marked trismus.

History. — The patient, an alcoholic, was somewhat intoxicated. This fact, coupled with a language barrier, hindered the taking of an accurate history. Three days earlier a mandibular left third molar had been extracted elsewhere. The patient had experienced pain and swelling for

some time previously; this was aggravated following the removal of the molar.

The patient claimed his general health had always been good. He gave no history of serious illnesses or operations, and had no known allergies. He admitted that he consumed large quantities of beer and wine and smoked one or two packages of cigarettes per day.

Examination. — The patient, an obese inebriated man, had a marked left sub-mandibular swelling extending from the infra-orbital margin to a point 3 cm. below the border of the mandible. The swelling was hot and indurated. Intra-oral examination was difficult due to marked trismus, the mandibular opening being limited to 1.5 cm. Numerous carious teeth and retained roots were observed, however, as was the socket of the mandibular left third molar. A sample of the purulent exudate which drained from the socket was sent for bacteriological culture and sensitivity tests. The patient's blood pressure was 132/80. The pulse rate was 88/min. and regular, and the rectal temperature was 101°F. Radiographs taken at this time revealed a radiolucent area in the left posterior region of the mandible (Figure 1).

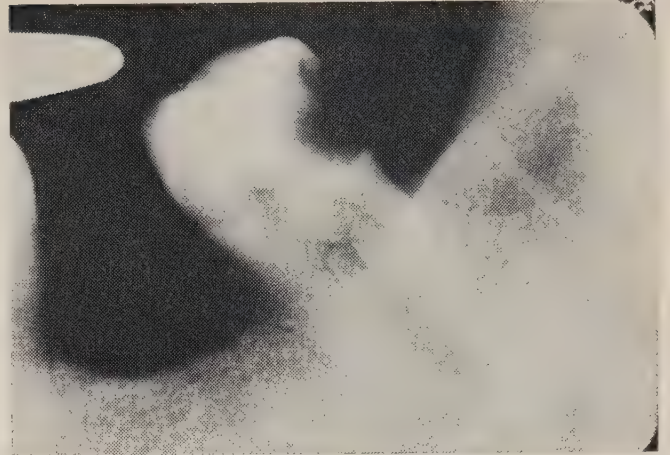


FIGURE 1 Periapical radiograph of lower left molar region taken on March 2, 1966, at first admission.

The haemoglobin was 14.1 Gm. per cent. The white blood count was 13,600 (neutrophils 70 per cent, lymphocytes 16 per cent, monocytes 4 per cent). The platelet count was normal. Urinalysis was negative for sugar but exhibited 2+ proteins. The Wasserman test was negative. Bacteriological culture tests yielded penicillin resistant *Str. viridans*, diphtheroids and gram negative bacilli.

Course in Hospital. — The patient received sodium oxacillin (Prostaphlin) 500 mg. intramuscularly every six hours.

FIGURE 2 Panoramic radiograph taken at second admission. Note radiolucent area with islands of normal bone in left ascending ramus of mandible.

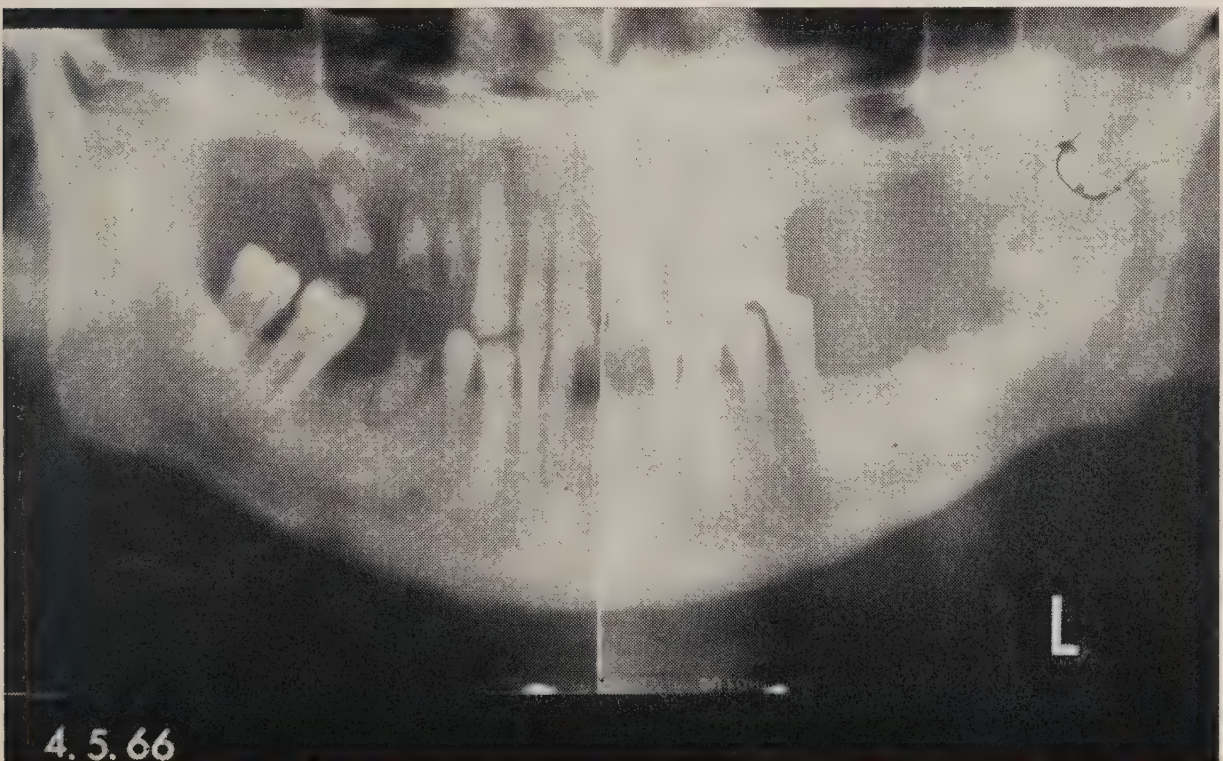




FIGURE 3 Extra-oral incision with Penrose drain to evacuate masticator space abscess (during second admission May 6, 1966).

Frequent hot saline rinses were instituted along with hydrogen peroxide mouth care. On March 3 the mandibular left second molar and the maxillary left second molar were removed under general anaesthesia. An incision was then made behind the socket of the lower second molar where subsequent blunt dissection with a Kelly forcep released a copious quantity of thick purulent exudate. A Penrose

FIGURE 5 (opposite page) Three panoramic radiographs showing subsequent bone repair.

drain inserted at this location was removed on March 6. The patient was discharged on March 8, by which time the swelling had markedly declined and the trismus had disappeared. He continued to receive antibiotics and was asked to return to the Out-Patient Dental Clinic on March 11. We followed him at three day intervals until March 23 by which time the swelling had disappeared. At this stage we urged the patient to seek further dental care from a private general practitioner. The final diagnosis made at the time of discharge was a left masticator space abscess.

SECOND ADMISSION

The patient returned on May 4 to the Out-Patient Dental Clinic with renewed swelling in the left submandibular region. He had apparently been well for two

FIGURE 4 Panoramic radiograph taken at third admission. Note large radiolucent area with numerous islands of normal and intensified radiopacity in the left ascending ramus of the mandible; also evidence of pathological fracture.





18.9.66



A black and white photograph of a bat skull, viewed from the front. The skull is light-colored against a dark background. The date "MAY 25 / 69" is handwritten in the top left corner. A small white letter "L" is visible in the bottom right corner.

L

25. 5. 67

weeks after we had last seen him. Thereafter, the swelling recurred and he had instituted his own home care which consisted of external and intra-oral application of live leeches. This treatment being of no avail, he had sought help at another Toronto hospital. He was admitted but, on learning that a surgical procedure would be required, he refused treatment and signed his own discharge from this hospital. The swelling subsequently worsened and he again returned to the Toronto General Hospital.

Examination.—Examination at this time revealed marked swelling of the left mandible accompanied by a mild degree of trismus. A purulent exudate draining from the mandibular left third molar region was sampled for bacteriological culture and sensitivity tests. The blood pressure was 130/80 with a pulse rate of 90/min. and a rectal temperature of 99°F.

Radiographs of the left mandible revealed a large radiolucent area in the ascending ramus encompassing islands of normal bone (Figure 2). In some of these areas the bone was more radiopaque than in others. The radiographic findings were suggestive of osteomyelitis.

The patient's haemoglobin was 13.0 Gm. per cent, the white blood count was 6,400, and the erythrocyte sedimentation rate (ESR) was 43 mm./hr. The platelet count was normal. Urinalysis was negative for sugar and proteins. The fasting blood sugar (FBS) was 90 mg. per cent and the blood urea nitrogen (BUN) was 14 mg. per cent. Serum calcium was 9.3 mg. per cent and serum phosphorus was 3.5 mg. per cent. Bacteriological culture yielded a coagulase-negative staphylococcus sensitive to penicillin, erythromycin, tetracycline and oxacillin.

Course in Hospital.—The patient again received sodium oxacillin 1 Gm. every six hours and hot oral saline rinses several times a day. On May 6, under general anaesthesia, we made an extra-oral incision to permit drainage (Figure 3). Postoperative treatment included continuation of intramuscular antibiotic therapy and irrigation of the wound with a saline-antibiotic solution. Recovery was un-

eventful, the swelling subsided, drainage ceased and we removed the Penrose drains on May 14. We discharged the patient on May 15. He continued to receive antibiotics and was asked to return to the Out-Patient Dental Clinic on May 18 but failed to do so.

THIRD ADMISSION

We next saw the patient in the Emergency Department of the Toronto General Hospital on July 1. At the time he was noticeably inebriated.

Examination.—He had a marked swelling of the left posterior mandible, and considerable exudate was draining from the extra-oral incision site. This was sampled for bacteriological culture and sensitivity tests. There was no intra-oral discharge and no demonstrable trismus. The blood pressure was 135/75 with a pulse rate of 72/min. and a rectal temperature of 99°F.

Radiographs of the left mandible revealed a large radiolucent area in the ascending ramus with numerous islands of normal bone and several bone islands of increased radiopacity. There was also a large sequestrum (Figure 4) as well as evidence of a pathological fracture.

The haemoglobin was 14.2 Gm. per cent, the white blood count was 7,600, and the ESR was 11 mm./hr. Urinalysis was again negative for sugar and proteins. Bacteriological culture yielded *Staph. aureus* resistant to penicillin but sensitive to oxacillin.

Course in Hospital.—The patient once more received oxacillin 500 mg. intramuscularly every six hours. On July 5, under general anaesthesia, we removed a large sequestrum 2.5 x 1.0 cm. from the left mandible through the existing fistula. We inserted a Penrose drain and sutured it to the skin. Antibiotic therapy was also continued. Recovery was again uneventful and we discharged the patient on July 8, though he continued to receive large doses of antibiotic. We also warned him about the necessity of keeping his subsequent out-patient appointments. The

patient did return periodically during the next few months, though not reliably. He has been well since July 1966. Radiographs taken over the past 10 months reveal normal regeneration of bone (Figure 5).

DISCUSSION

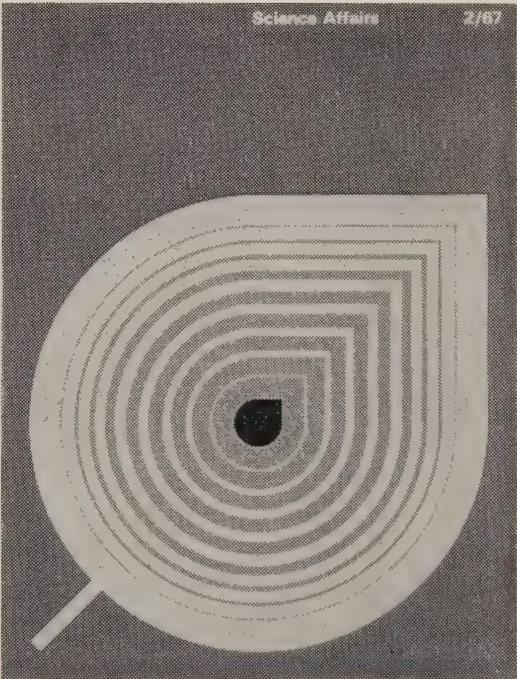
Steg⁷ has reported a case of osteomyelitis similar to that described here. Steg's patient was also an alcoholic who neglected to seek treatment. As in this case, Steg's patient had remarkably little pain which Steg attributed to the constant state of intoxication. However, chronic osteomyelitis of the mandible may on occasion be relatively painless. It is also interesting that no staphylococci were cultured at the initial admission; these may have been the pathogens of a secondary infection. The patient's procrastination in seeking early attention and removal of

infected teeth undoubtedly led to the eventual development of osteomyelitis. His subsequent unreliability in keeping postoperative appointments and his failure to take medication as instructed complicated the course of the disease. Osteomyelitis remains a constant hazard following odontogenic infections.

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123 Edward Street.

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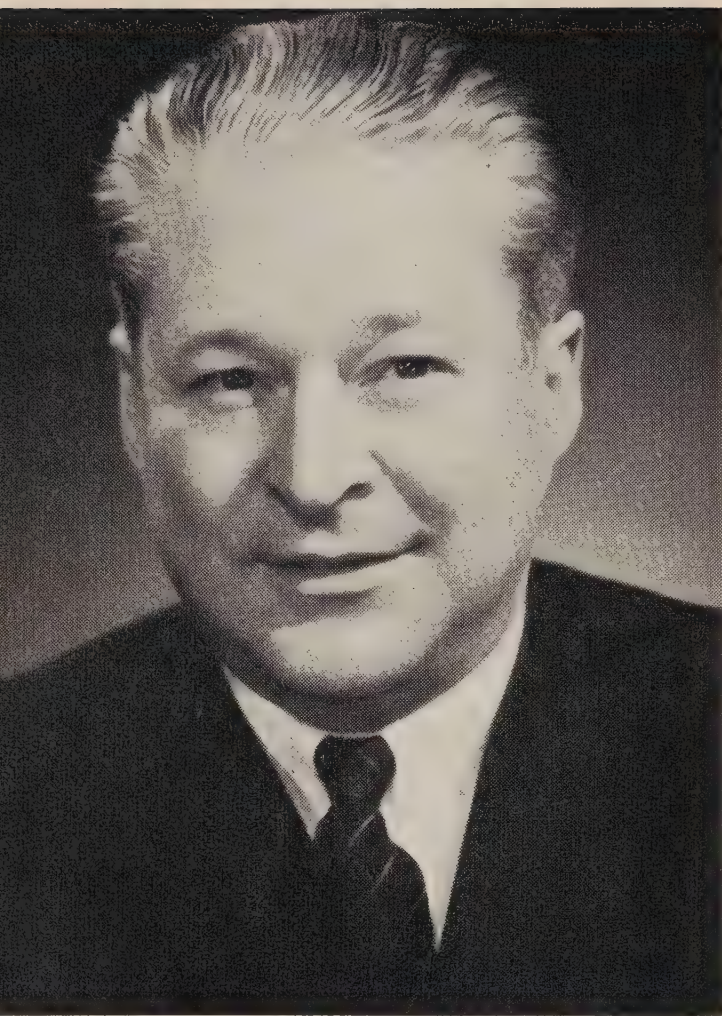
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Medical manpower problems: today and tomorrow

N. J. Belliveau, MD, Cert. RCP&S[C], DSc, LL D, Montreal, Que.*

The medical and dental professions have always enjoyed close and amicable relations. We share many common interests, including a mutual concern over present and future health manpower.

Problems affecting the supply of personnel are very similar in medicine and dentistry. According to Dr. W. G. McIntosh there are over 6,500 licensed dentists in Canada; yet less than 5,500 actually engage in direct general care of patients.¹ The true dentist-population ratio in Canada is therefore 1:3,622, not 1:3,000. We have similar misgivings about

the often-quoted figure of one Canadian physician for every 825 patients in Canada.

Our two professions are also plagued by distribution problems, exemplified in your case by British Columbia where there is one dentist for 2,400 people and Newfoundland which has only one dentist for 10,000. Both ratios contrast sharply with a recent American report which claims that any area with a dentist-population ratio exceeding 1:2,000 is inadequately serviced.

We share your concern over the scarcity of teacher-scientists and we deplore the

inadequate means for producing enough of them to staff existing and new professional schools. On the other hand, we are envious of the recent upsurge in Canadian-trained dentists. In the past four or five years you have actually bettered the dentist-population ratio, bad as it was, by graduating more dentists. I shudder at what might have happened to our physician-patient ratio in recent years if we had had to rely exclusively on Canadian-trained physicians for manpower.

In his report to the Royal Commission on Health Services, Dr. K. J. Paynter recommended that four new schools of dentistry should be constructed and one should be extended. Two of those schools already exist, the third will admit its initial first year students next year, and the fourth is well advanced on the planning boards. Unfortunately, our own recommendations to the Commission did not fare as well.

There is, however, another side to this question. Dr. McIntosh has said that Canadians need a lot more dental care than they actually request. Consequently, the demand for dental services, great as it is today, could rise sharply in response to better public understanding of the importance of good dental health and the removal of financial obstacles to dental care. Your efforts to educate the public about dental health become more successful every year. Current voluntary prepaid dental care programs and possible future government-sponsored universal dental insurance schemes could therefore exert an even greater impact on your manpower than their counterpart in medicine.

During a recent visit to Saskatchewan, I studied some of the difficulties arising from an overall medicare program. Among the major problems are the escalating demand for services and deterioration of the physician-patient relationship. Both stem from the same source: the physician's difficulty in finding sufficient time to provide all of the services which his patients need, want or demand. Since 1962, when Saskatchewan introduced its comprehensive medicare program, the utilization of services in that province has grown at 4½-5 per cent per year. The number of physicians increased by only 2 per cent per year in the corresponding pe-

riod. In short, the supply of physicians has failed to keep pace with the increased demand for services. The physicians in that province are providing these additional services largely by spending more time in their practice. The consequent preoccupation with volume of service has adverse short-term effects, but these are not nearly as significant as the long-term repercussions.

Canada's shortage of general medical practitioners is getting worse. This is happening at a time when patients are making greater demands for the services provided by family physicians. Moreover, experience in Saskatchewan has shown that increased utilization of services following the introduction of medicare falls primarily on the general practitioner. The consequent shortage of physicians is most acutely felt in large cities and in rural and remote areas of the country.

In 1955, when Canada had 15.7 million people, there were 13,660 practising physicians. Of these, 9,800 were general practitioners and the balance were specialists. Ten years later, when the population had grown to 19½ million and the number of physicians to 19,600, there were 10,200 general practitioners and 9,400 specialists. This reflects a 94.6 per cent increase in specialists but only a 4.1 per cent increase in general practitioners during a period when the Canadian population increased by over 18 per cent.

Recent political decisions have stimulated greater public awareness about the benefits of health services and the tremendous scientific advances in this field. Further scientific advances will significantly increase the future demand for medical services. Federal medicare will not only magnify existing medical manpower problems; it will also augment manpower shortages in the entire health team. Regardless of the cost, we will have to prepare ourselves to meet the increased demands for service insofar as these represent real needs. But there is considerable concern, particularly in Saskatchewan, lest some of these demands be translated into misuse of skilled workers' time.

The proliferation of insurance mechanisms undoubtedly increases the utilization of health services. This is particularly noticeable in Saskatchewan where every-

one is insured for all medical services. I believe that the public's preoccupation with demand for services will prevail for the next five to seven years. We must therefore find some way of providing the additional manpower required to meet these demands.

Last year the Canadian Medical Association told the Joint Senate-House of Commons Committee on Immigration that Canada will require 1,500+ physicians every year just to maintain the present physician-population ratio. Nearly 40 per cent of our recently licensed physicians have, in fact, been trained abroad. It seems immoral to rob less fortunate countries of their extremely scarce medical personnel. But our own universities cannot train all the physicians that we require in the immediate future. Canada's dental schools had to turn away 219 qualified first year applicants in 1966. However, we lack a comparable supply of suitable potential medical students. Consequently, the erection of new physical plants and the recruitment of more teachers, even if they were available, provide no automatic solution to our problem.

Where, then, can we find additional medical manpower? First, we will probably have to increase paramedical personnel to satisfy the rising demand for services. Many of these workers can be recruited by upgrading the knowledge and skills of those presently working within the health team. This has been medicine's traditional method — adjusting the work force to meet changing needs for service.

But this will not solve the long-term problems — those of the next 10-25 years. The traditional method of augmenting manpower is simply inadequate and too slow. Criticism is frequently voiced about the time lag between discovery and implementation; as the rate of discovery increases the time lag becomes proportionately greater and less acceptable. We must therefore strive for the day when discovery will coincide with corresponding change in practice, always remaining mindful of the dictates of the quality of the care we are called upon to render.

Major changes are just around the corner. Replacement or spare part medicine will soon be commonplace. New drugs and techniques will arrest many currently fa-

tal diseases. Hospitals will be completely automated enabling teams of physicians to make instant decisions based on data provided by computers. Automation will extend far beyond the hospital so that eventually all medical records will be stored in the memory banks of large computers. This hopeful pattern for the future, already closer than we may think, could be delayed if we do not make adequate provision for a greater volume of services.

We must therefore plan tomorrow's medical services today. We have to adopt new techniques and must accept new roles in the field of health manpower. We will need a greater proportion of university-trained health personnel, many in occupations which do not exist today. We will require innovators who can translate research into practical application. We will also need medical engineers who are knowledgeable in anatomy and physiology in addition to basic engineering skills. Only in this way can we resolve the present laborious process of training a man to become a physician first and later an engineer.

The Canadian Medical Association accepts its share of responsibility in this field. A comprehensive medical manpower census, undertaken last year and in the final stages of completion, is expected to give us a more accurate picture of physician-population ratios in terms of those who directly provide all types of medical care. A special CMA committee will use this information as a basis for considering ways of more effective deployment of medical manpower. The committee will also examine many of the future problems which I have outlined. For, unless we start to plan now, we will not have the personnel to do the job that is expected of us 10 or 20 years hence. The medical manpower shortage is a matter that affects all Canadians. The medical manpower problems of tomorrow should be our major concern today.

*Dr. Belliveau is president of the Canadian Medical Association. This paper is based on an address which he delivered November 1, 1967 to the Montreal Dental Club Fall Clinic.

1. McIntosh, W. G. Manpower problems in the dental profession. Address delivered to the Medical Manpower Conference, 100th Annual Meeting of the Canadian Medical Association, Montreal, June 22, 1967.

1 Place Ville Marie

Les problèmes de main-d'oeuvre en médecine aujourd'hui et demain

N. J. Belliveau, MD, Cert, RCP&S [C] DSc, LL D, Montréal, Qué.*

Les professions médicale et dentaire ont toujours eu des rapports étroits et amicaux. Nous avons de nombreux intérêts communs et nous nous préoccupons l'une et l'autre des questions de main-d'œuvre, actuelles et futures, dans le domaine de la santé.

La médecine et la dentisterie font face aux mêmes problèmes concernant les effectifs. D'après le Dr W. C. McIntosh, le Canada a plus de 6,500 dentistes autorisés à pratiquer et pourtant moins de 5,500 d'entre eux soignent directement les patients. Le rapport réel dentiste/population au Canada, est par conséquent de 1:3,622 et non de 1:3,000. Nous avons les mêmes réserves à faire en ce qui concerne les chiffres souvent cités d'un médecin pour 825 patients au Canada.

Nos deux professions souffrent des mêmes problèmes de distribution: votre situation en Colombie britannique en est un bon exemple. Cette province a un dentiste pour 2,400 personnes alors que Terre-Neuve n'en a qu'un pour 10,000. Ces deux chiffres contrastent vivement avec le résultat d'une enquête américaine récente d'après laquelle la population est mal desservie si le rapport dentiste/population dépasse 1:2,000.

Nous partageons votre souci quant au petit nombre de professeurs-scientistes et nous déplorons de ne pas avoir les moyens d'en produire suffisamment pour les facultés existantes et les nouvelles écoles professionnelles. D'autre part, nous vous envions la récente promotion de dentistes formés au Canada. Ces quatre ou cinq dernières années, vous avez amélioré le

rapport dentiste/population qui n'était pas bon, en produisant plus de dentistes. Je n'ose penser à ce qui serait arrivé à notre rapport médecin/population dans les dernières années, si nous avions dû compter exclusivement sur les médecins formés au Canada.

Dans son rapport à la Commission royale sur les Services-santé, le Dr K. J. Paynter a recommandé la construction de quatre nouvelles facultés dentaires et l'agrandissement d'une faculté existante. Deux de ces facultés ont déjà été créées, la troisième recevra ses premiers étudiants de première année l'année prochaine et les plans de la quatrième sont déjà bien avancés. Il est regrettable que nos recommandations à la Commission n'aient pas eu d'autant de succès.

Il y a toutefois un autre côté à cette question. Le Dr McIntosh a déclaré que les Canadiens avaient un besoin de soins dentaires bien supérieur à ceux qu'ils demandaient. Par conséquent, la demande de soins dentaires, si grande soit-elle aujourd'hui, pourrait augmenter dans de grandes proportions lorsque le public sera plus convaincu de l'importance de la santé dentaire et que les obstacles financiers auront été éliminés. Vos efforts pour éduquer le public rencontrent chaque année, plus de succès. Les programmes actuels de soins dentaires prépayés et les régimes éventuels d'assurance dentaire universelle, commandités par le gouvernement, pourraient avoir encore plus d'effets sur vos effectifs que sur ceux de la médecine.

Au cours d'une visite récente en Sas-

katchewan, j'ai étudié certaines des difficultés qui découlent d'un programme d'assurance médicale générale. La demande croissante de services et la détérioration des relations médecin-patient sont parmi les problèmes principaux. Ils proviennent tous les deux d'un même facteur: le manque de temps pour permettre au médecin de fournir tous les services que ses patients désirent, réclament ou dont ils ont besoin. Depuis 1962, date à laquelle la Saskatchewan a inauguré son programme d'assurance médicale générale l'utilisation des services dans cette province a augmenté de 4.5 à 5 pour cent par an. Le nombre des médecins n'a augmenté que de 2 pour cent pendant la période correspondante. En un mot, le nombre des médecins n'a pas augmenté suffisamment pour satisfaire à la demande croissante de services. Les médecins dans cette province ont fourni ces services supplémentaires en travaillant de plus longues heures. La préoccupation qui en découle, quant au volume des services, a des effets nuisibles à court terme, mais ces effets sont loin d'avoir la portée des répercussions à long terme.

Le manque de médecins de médecine générale au Canada est en train de s'accroître et ceci à une époque où les patients demandent de plus en plus de services au médecin de famille. De plus l'expérience en Saskatchewan a indiqué que la demande accrue de services médicaux après l'entrée en vigueur de l'assurance se produisait principalement au niveau de la médecine générale. C'est pourquoi, le manque de médecins se fait le plus fortement sentir dans les grandes villes et dans les régions rurales et isolées du pays.

En 1955, lorsque le Canada avait 15.7 millions d'habitants, il avait 13,660 médecins traitants dont 9,800 exerçaient la médecine générale, les autres étant des spécialistes. Dix ans plus tard, la population se montait à 19 millions et demi et les médecins étaient au nombre de 19,600 dont 10,200 médecins de médecine générale et 9,400 spécialistes. Ces chiffres indiquent une augmentation des spécialistes de l'ordre de 94.6 pour cent, mais 4.1 pour cent d'augmentation seulement pour les médecins non spécialisés, ceci alors que

la population du Canada augmentait de plus de 18 pour cent.

Des décisions politiques récentes ont donné plus conscience au public des avantages que leur offrent les services-santé et les progrès scientifiques très rapides qui ont été faits dans ce domaine. D'autres découvertes scientifiques augmenteront encore sensiblement, à l'avenir, la demande de services médicaux. Le programme d'assurance-maladie fédéral non seulement rendra plus sensible le manque de médecins, il produira également une carence générale de personnel médical. Quoi que cela coûte, il faudra que nous nous préparions à fournir plus de services dans la mesure où ils répondent à des besoins réels. On se demande, particulièrement en Saskatchewan, si dans certains cas, le personnel qualifié ne perd pas son temps.

La prolifération des mécanismes d'assurance augmente certainement l'utilisation des services-santé. On le remarque tout particulièrement en Saskatchewan où tout le monde est assuré pour tous les services médicaux. Je crois que le public arrivera à obtenir les services qu'il désire dans une période de cinq à sept ans. Nous devons, par conséquent, trouver le moyen de fournir les effectifs nécessaires pour satisfaire à cette demande.

L'année dernière, l'Association médicale canadienne a déclaré à un comité conjoint du Sénat et de la Chambre des communes, sur l'immigration, que le Canada aura besoin de 1,500 médecins supplémentaires par an, s'il veut simplement maintenir le rapport actuel médecin/population. Près de 40 pour cent de nos médecins récemment diplômés ont, en fait, reçu leur formation à l'étranger. Il semble immoral de voler à des pays moins favorisés un personnel médical déjà trop peu nombreux. Mais nos universités ne peuvent pas former tous les médecins dont nous aurons besoin dans un avenir immédiat. Les facultés dentaires du Canada ont dû refuser d'inscrire 219 étudiants qualifiés de première année en 1966. Il faut admettre qu'en médecine, nous manquons d'un nombre semblable d'étudiants éventuels. Il n'en reste pas moins que la construction de nouveaux bâtiments et le recrutement de nouveaux professeurs,

si nous pouvons nous les procurer ne résolvent pas automatiquement nos problèmes.

Mais où trouver de la main-d'œuvre médicale supplémentaire? Tout d'abord nous devons sans doute augmenter le personnel paramédical pour satisfaire à la demande croissante de services. On pourra en recruter une grande partie en améliorant les connaissances et la compétence de ceux qui travaillent à l'heure actuelle au sein de l'équipe sanitaire. C'est là la méthode traditionnelle utilisée par la médecine: l'ajustement de la main-d'œuvre pour répondre aux besoins nouveaux.

Mais ceci ne résoudra pas les problèmes à long terme, auxquels nous devons faire face dans 10-25 ans. La méthode traditionnelle qui consiste à augmenter la main-d'œuvre est insuffisante et trop lente. On critique fréquemment le délai entre la découverte et l'application; au fur et à mesure que le rythme des découvertes s'accélère, le délai augmente proportionnellement et devient de moins en moins acceptable. Nos efforts doivent donc tendre à faire coïncider la découverte avec l'application, sans toutefois perdre de vue la qualité des soins que nous sommes appelés à rendre.

Il va se produire incessamment de grands changements. La médecine de remplacement, de pièces détachées, va devenir courante. De nouveaux médicaments et des nouvelles techniques arrêteront l'évolution de maladies actuellement mortelles. Les hôpitaux seront entièrement automatisés, permettant ainsi aux équipes de médecins de prendre des décisions instantanées sur la base des données fournies par les ordinateurs. L'automatisation dépassera d'ailleurs de beaucoup le cadre des hôpitaux et éventuellement tous les dossiers médicaux seront conservés dans les banques des gros ordinateurs. Cet avenir, dont l'avènement n'est pas aussi éloigné qu'on pourrait le croire, pourrait être retardé si nous ne prenons pas les mesures nécessaires pour augmenter le volume de nos services.

C'est donc aujourd'hui que nous devons préparer les services médicaux de demain. Nous devons accepter d'utiliser de nouvelles techniques et de jouer de nouveaux rôles dans le domaine de la main-d'œuvre pour les services-santé. Nous aurons besoin de plus de personnel avec une formation universitaire pour occuper des postes qui n'existent pas aujourd'hui. Nous aurons besoin d'innovateurs qui appliqueront la recherche à la pratique. Nous aurons besoin aussi d'ingénieurs médicaux qui, en plus de leur formation technique auront étudié l'anatomie et la physiologie. Ce n'est que de cette façon que nous résoudrons le problème actuel qui consiste à former la même personne d'abord comme médecin et ensuite comme ingénieur.

L'Association médicale canadienne accepte sa part de responsabilité dans ce domaine. Un recensement général de la main-d'œuvre médicale, entrepris l'année dernière et maintenant presque terminé, nous donnera une idée plus juste des rapports médecin/population du point de vue de ceux qui fournissent directement toutes les sortes de services médicaux. Un comité spécial de l'AMC se servira de ces données pour envisager les moyens de répartir plus efficacement les effectifs médicaux. Le comité examinera aussi un grand nombre des problèmes futurs que nous avons exposés, car, si nous ne nous organisons pas maintenant, nous n'aurons pas dans 10 ou 20 ans, le personnel nécessaire pour accomplir la tâche qui sera la nôtre. Le manque de main-d'œuvre médicale est une question qui concerne tous les canadiens. Les problèmes de la main-d'œuvre médicale de demain devraient être notre principale préoccupation aujourd'hui.

*Le Dr Belliveau est président de l'Association médicale canadienne. Cet article est tiré d'une communication qu'il a faite le 1er novembre 1967 à la Montreal Dental Club Fall Clinic.

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1 Place Ville-Marie



An examination of fluid consumption and local temperature patterns shows that water supplied to communities with a mean maximum temperature of 50-51.3°F should contain 1.2 ± 0.1 ppm fluoride. In that temperature range this level of fluoride does not occasion objectionable fluorosis.

■

Une étude de la consommation de liquide et des températures moyennes locales indique que l'eau fournie aux agglomérations, à une température moyenne de 50-51.3°F devrait contenir 1.2 ± 0.1 ppm de fluor. A ces températures, cette quantité de fluor ne crée pas de fluorose désagréable.

Optimum fluoride levels for community water supplies

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It is generally agreed that the ingestion of water containing at least 1.0 ppm fluoride produces a significant reduction in caries.^{1,2} Maximal protection with minimal risk of endemic fluorosis ensues when water containing 0.8-1.2 ppm is consumed during the first 12 years of life.³ This raises an important question: can fluoride levels of water supplied to northern communities like those in British Columbia be safely raised to 1.2 ± 0.1 ppm without incurring fluorosis?

Galagan and Vermillion⁴ have shown that California children whose average weight is 46.5 lbs. and who drink water with 1.0 ppm fluoride ingest about 0.5 mg. fluoride daily. This is similar to other estimates of the quantity of fluoride that should be ingested through water for optimum dental health. But the actual quantity consumed may be influenced by the mean maximum temperature for a given region, fluid consumption patterns, age and other factors.

Under normal living conditions water intake increases directly with increases in temperature. Galagan et al⁵ observed an average daily water consumption of 0.272 oz./lb./day at a maximum daily temperature of 50°F, and 0.334 oz./lb./day at 60°F. They also reported that fluid intake is highest in infants and decreases with age.

The ingestion of a large volume of fluid other than tap water can also reduce fluoride intake. Wagner¹ thus claims that excessive consumption of milk or calcium tablets could provide sufficient calcium to decrease fluoride utilization. There is also evidence that the metabolism of fluoride, when ingested in a single dose as in a tablet, differs from that of persons residing in communal fluoride areas who continuously ingest small quantities of fluoride from drinking water and food prepared with fluoride-containing water. Moreover, 95 per cent of an ingested single dose of fluoride is rapidly excreted in the

urine with only minor quantities retained by the body.³

Mechanical difficulties sometimes lower the fluoride level of fluoridated water. To achieve a target level of 1.0 ppm, plant operators calculate the amount of fluoride to be added after taking into consideration the raw water fluoride level. This level in the northern areas of British Columbia usually ranges between 0.15-0.30 ppm. But colorimetric analysis of the treated water often indicates levels of 0.9 to 0.8 ppm, probably because plant operators prefer to err on the side of safety. They may be unaware that the problem of minute overdosage is one of fluorosis rather than impaired health.

LITERATURE REVIEW

McClure⁶ has shown that there is no significant retention in young men when total daily ingested fluoride does not exceed 4.0-5.0 mg. This may be the upper limit of fluoride that can be ingested without an appreciable hazard of body storage. According to Hodge and Smith,⁷ an adult of average weight must ingest and retain at least 5-10 Gm. of fluoride within two to four hours to endanger life, and must take in 20-80 mg. daily for 10 to 20 years to risk chronic poisoning. Elsewhere⁸ the lethal oral dose of sodium fluoride, though not known with certainty, is given as 2-5 Gm.; lesser amounts may cause accidental poisoning or death in small children.

Russell⁹ asserts that dental fluorosis may be avoided by restricting the intake of fluoride by children to optimum levels during the period of enamel formation. Mottled enamel can be prevented if children through the age of eight years do not ingest more than 1 mg. fluoride per day.

Bonham, Gray and Luttrell¹⁰ studied the fluoride intake pattern of six year old children in a northern fluoridated community (Prince George) where the mean maximum temperature from October to January 1964-65 was 27.7°F. Milk, water and fruit juices were the major sources of dietary fluids. The consumption of drinking water varied at different times, ranging from none to 29 ounces per day

per child. Quantitatively, milk was the fluid most consistently consumed, but individuals ingested widely varying amounts. Of the total fluid intake, water represented 23.8 per cent, milk 52.7 per cent and fruit juices 7.8 per cent. Eighty per cent of the milk consumed was whole milk. The average fluid intake related to body weight was 0.7 oz./lb./day. This level, though somewhat lower than that observed by Galagan et al, closely approximates the intake of 0.678 oz./lb./day in six year olds recorded by McPhail and Zacherl¹¹ in Edmonton. There are geographical parallels between Prince George and Edmonton; the mean (annual) maximum temperature is 48.4°F for Prince George and 43.4°F for Edmonton.

McPhail and Zacherl¹¹ studied the fluid intake pattern of children aged 0-10 in Edmonton where the October-March mean maximum temperature is 28.5°F. At about 50°F they found that the effect of climatic temperature on water intake was altered by the influence of the artificial environmental temperature created by heating the home and school. Tap water constituted 50.3 per cent and whole milk 40.9 per cent of the total fluid intake. Children aged 0-1 consumed slightly less than one pint of whole (fluid) milk per day. All other children consumed slightly more than half a pint per day. The mean total water consumption (all tap water and tap water-based fluids) was less than 1.0 oz./lb./day for all age groups.

Galagan et al⁵ investigated fluid intake in Antioch and Brentwood, California. They established correlations between temperature and total fluid intake, drinking water, water-based beverages, and total water intake. Positive correlations were also obtained between fluid consumption and body weight. Fluid intake per pound body weight was highest in infants and decreased with age. Boys and girls exhibited no substantial differences in the amount of fluid consumed per pound of body weight. Under normal living conditions water intake increased directly with increases in temperature.

From this study Galagan and Vermilion⁴ developed a method for determining the optimum fluoride concentration in water supplies. This takes into account the effect of environmental temperature

on water consumption among children. Their formula is:

$$\frac{0.34}{E} = \text{ppm fluoride}$$

where E = -0.038 + 0.0062 temperature. Two points in this equation are stressed: first, the temperature must represent at least a five year average; second, only the mean maximum temperature in degrees Fahrenheit is to be used.

More recently Richards et al¹² completed a five year study of the relationship between water-borne fluoride, ambient temperature, dental caries and enamel hypoplasias. They tried to determine the optimum fluoride level in five states, each with areas of varying temperature levels.

These investigators demonstrated a consistent decrease in the number of caries-affected teeth per child when the fluoride level increased while the temperature remained constant or when the temperature increased while the fluoride level remained unchanged. There was also a strong direct relationship between the percentage of caries-free children and the factors of fluoride and temperature.

Richards et al¹² assert that fluorosis can be observed clinically when fluoride is present in the water supply during the

TABLE 1 Percentage of children in temperate zone (mean maximum temperature not exceeding 65°F) who exhibit fluorosis.

Fluorosis	ppm fluoride in drinking water		
	0.8 - 1.0	1.1 - 1.3	1.8
Normal	40.0	33.1	11.1
Questionable	39.2	41.1	23.5
Very mild	18.0	22.5	29.5
Mild	2.8	3.3	15.7
Moderate			15.0
Severe			5.2

period of enamel formation. The percentage of children with observable fluorosis and the severity of this defect depend on the amount of fluoride present in water and the ambient temperature of the area. These investigators¹² observed questionable or no fluorosis in 75 per cent of children residing in a region with a mean maximum temperature not exceeding 65°F and where the level ranged from 1.1-1.3 ppm (Table 1). These data, they say, suggest that optimum fluoride levels should produce desirable (questionable, very mild, mild) fluorosis in all children.

Richards et al¹² found that 20 per cent of children manifest moderate to severe fluorosis when the fluoride level ap-

TABLE 2 Monthly maximum temperatures and monthly fluoride levels in Prince George and Fort St. John, British Columbia, water supplies.

	Prince George			Fort St. John	
	ppm: HU	ppm: CL	MMT: °F	ppm: CL	MMT: °F
	1965		1964	1965	1964
July	1.2	1.1	67.7	0.86	68.6
August	0.9	1.0	65.0	1.0	65.3
September	1.0	1.0	56.7	1.10	55.3
October	1.0	0.9	50.9	1.00	52.5
November	0.8	0.8	29.4	0.90	25.2
December	0.8	0.8	11.5	0.65	0.4
	1966		1965	1966	1965
January	0.8	0.9	18.9		7.0
February	1.0	1.2	30.4	0.74	9.5
March	1.0	1.1	37.0		31.3
April	1.0	1.0	50.3	0.97	45.7
May	1.0	1.1	59.5	1.24	58.8
June	1.0		67.9	1.04	67.2
Average	0.95	0.99	45.4	0.95	40.5

HU=Health unit test.
CL=Central laboratory test.

TABLE 3 Mean maximum temperatures in selected Canadian cities.

City	1964	1965
Brantford, Ont.	56.1°F	51.9°F
Stratford, Ont.	52.6	51.3
Toronto	55.0	52.9
Calgary	49.6	45.5
Edmonton	45.8	43.4
Fort St. John, BC	42.2	42.4
Prince George, BC	46.2	48.4
Prince Rupert, BC	49.1	50.0
Kimberly, BC	51.3	50.0
Trail, BC	56.7	59.0
Kelowna, BC	56.1	57.9
Vancouver	54.9	52.9
Victoria	55.8	53.2

Source: National Research Council, Department of Transport, Ottawa, December 1966.

TABLE 4 Comparison of body weight and fluid consumption in Edmonton and Antioch, California, children aged 5-6.

	Edmonton	Antioch
Body weight: lbs	45.5	51.7
All fluids: oz./lb./day	0.68	0.88
Tap water: oz./lb./day	0.37	0.38
Total water: oz./day	18.6	19.6
All fluids: oz./day	31.0	45.5

proaches 2.2 ppm and the mean maximum temperature does not exceed 65°F. These data, along with Dean's findings,¹³ suggest that objectionable enamel fluorosis may begin to appear at levels of 1.4-1.6 ppm in lowest temperature zones. Consequently, Richards et al¹² considered 1.1-1.3 ppm an optimum fluoride range compatible with caries protection and the avoidance of objectionable fluorosis in this temperature zone.

DATA

Fluoridation opponents often assert that fluorides cannot be fed accurately into the water supply. While it is true that in a few instances the level of fluoride has varied widely, this does not mean that a good job cannot be done. A range of plus or minus 0.1 ppm can be achieved if reasonable care is taken by the operator.¹⁴

Records from Prince George and Fort St. John (Table 2) which have well oper-

ated water systems do, however, reveal considerable fluctuation over a 12 month period. The fluoride levels are consistently less than the minimum recommended for optimum benefits to children.

Table 3 presents maximum temperature levels for a number of Canadian cities. Some have naturally or mechanically fluoridated water supplies; others are potential centres for fluoridation.

Table 4 compares body weight and fluid consumption of Edmonton and Antioch, California, children. There are geographical and temperature similarities between Edmonton and Prince George; consequently Edmonton data are applicable to northern British Columbia.

DISCUSSION

Galagan and Vermillion⁴ and other investigators believe that fluoridated water confers optimum benefits when children ingest about 0.5 mg. fluoride daily through their drinking water. McPhail and Zacherl¹¹ showed that Edmonton children aged 1-10 consumed an average of 18 ounces of tap water per child per day. Total fluid consumption in Edmonton six year olds was 0.68 oz./lb./day; in Antioch this consumption was 0.88 oz./lb./day for children of similar age.

These studies indicate that children in Edmonton or similarly fluoridated communities probably consume less water than that required for optimum benefit from a fluoridated system. Moreover, milk consumption can represent approximately 40 per cent of the total fluid intake; yet the fluoride content of whole milk is negligible, being about 0.1-0.28 ppm.¹⁵ One is therefore forced to conclude that the consumption of fluid in areas where mean maximum temperatures do not surpass 60°F fails to provide sufficient fluoride when the water contains no more than 1.0 ppm fluoride.

To attain a desirable level in a low temperature region the fluoride content of the water should be raised to a point which does not occasion dental fluorosis. Fluoride toxicity is not at issue since the additional fluoride has no significant effect on physiological or growth processes.

The United States Public Health Service¹⁶ has set control limits for fluoride in water (Table 5). These range from 0.9 to 1.7 ppm (or mg./litre) in areas with an annual average maximum air temperature of 50-53.7°F. Richards et al¹² advocated concentrations of 1.1-1.3 ppm in areas with a mean maximum temperature not exceeding 65°F (Table 6).

Brown² found in Stratford (1.6 ppm, MMT 51.3°F) and Brantford (1.0 ppm, MMT 51.9°F) "a few cases of very mild mottling, detectable only by an experienced examiner Mottling to a significant and unsightly degree was not observed at any time during the course of this study."

The mean maximum temperatures of Canadian cities do not exceed 65°F level as defined by Richards. The evidence from Stratford (1.6 ppm) suggests that towns with mean maximum temperatures less than 51.3°F can raise their fluoride level to 1.5 ppm without risk of objectionable fluorosis. But fluid consumption increases when the mean maximum temperature falls below 50°F.¹¹ Consequently fluoride limits of 1.2 ± 0.1 ppm seem most appropriate in British Columbia.

CONCLUSION

On the basis of this review of the literature it is recommended that the fluoride levels in water supplies throughout British Columbia be controlled at 1.2 ± 0.1 ppm.

TABLE 5 Control limits for fluoride in water recommended by the US Public Health Service.

Annual average maximum air temperature: °F	Fluoride concentration: mg./litre (ppm)		
	Lower limit	Optimum	Upper limit
50.0 - 53.7	0.9	1.2	1.7
53.8 - 58.3	0.8	1.1	1.5
58.4 - 63.8	0.8	1.0	1.3
63.9 - 70.6	0.7	0.9	1.2
70.7 - 79.2	0.7	0.8	1.0
79.3 - 90.5	0.6	0.7	0.8

TABLE 6 Control limits for fluoride in water recommended by the California State Department of Public Health.

Mean maximum temperature: °F	Fluoride concentration: ppm		
	Minimum	Optimum	Maximum
65 and below	1.1	1.2	1.3
66 - 79	0.8	0.9	1.0
80 and over	0.5	0.6	0.7

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Five year projection of CDA services and fiscal needs

Executive Council



The following statement outlines the many services which the Canadian Dental Association now provides and must continue to furnish its members. The expansion of several current programs and the addition of new programs is essential in order to help the profession meet expected demands for its services in the next five years. The statement analyses the cost of current services. Also projected is the cost of maintaining these services, expanding certain programs and adding selected new programs. To implement these services, the Executive Council recommends to the Board of Governors that the annual corporate member grants, beginning with the grants for 1969, be calculated on the basis of \$65 per licensed dentist.

Current Services

The constitution of the CDA lists the objects of the Association as follows:

(a) To cultivate and promote the art and science of dentistry and all its collateral branches, and to maintain the honour and interests of the dental profession;

(b) To conduct, direct, encourage, support or provide for exhaustive dental and oral research;

(c) To elevate and sustain the professional character and education of dentists;

(d) To promote mutual improvement, social intercourse and goodwill among members of the profession;

(e) To enlighten and direct public opinion in relation to oral hygiene; dental prophylaxis, oral health and advanced scientific dental services;

(f) To disseminate knowledge of dentistry and dental discoveries;

(g) To have cognizance of and safeguard the common interest of the dental profession;

(h) To publish dental journals, reports and treatises;

(i) To do all further or other lawful acts and things as are incidental or conducive to the attainment of the above objects.

Services provided in the pursuit of these objects serve the public interest as well as that of the profession. The Association's work is initiated in its 24 councils, committees and sections. After approval by the Board of Governors or Executive Council, relevant decisions are implemented through the headquarters staff. A complete account of the activities

of the councils, committees and sections and actions taken by the Board of Governors is recorded annually in *CDA Transactions*. These are supplied to every individual member.

The focal point of Canadian dentistry is the Association's headquarters building at 234 St. George Street in midtown Toronto. From this home the dental profession provides its services and answers enquiries from Canadian and foreign visitors. The building houses the Association's library and printing plant. It has facilities to help individual and corporate members. It also affords meeting rooms for councils, committees and sections. A permanent 19 member staff, directed by the Association secretary, assembles all pertinent information for these agencies and carries out their decisions. Apart from answering innumerable daily postal and telephone enquiries, the staff disseminates up-to-the-minute information on all aspects of dentistry, including such diverse topics as advances in dental treatment, prevention and control of dental disease, dental manpower and resources, and new government initiatives in the field of dental health.

Countless dentists and public health agencies use the informational pamphlets developed, printed and sold at cost by the Canadian Dental Association. The factual information contained in these publications saves dentists many hours of precious chairside time. CDA-sponsored television filmlets have also generated an enthusiastic response from local and network TV stations in all parts of the country. And, thanks to its tireless cultivation of the media of mass communication, popular writers and broadcasters look to the CDA as the authoritative source of information on nationally significant issues in dentistry.

As the national voice of dentistry, the Association provides leadership in the development of guidelines for dental programs of all types. Governmental, voluntary and commercial agencies look to the Association for advice on the establishment of dental prepayment plans, dental benefits for welfare recipients and other publicly funded dental care programs. The

Association has been most successful in persuading government at all levels that an incremental dental care program for children is the only rational approach to the nation's dental health problems.

The Association collects, collates and distributes information on proven preventive measures such as fluoridation of communal water supplies and the implementation of these measures in communities across Canada. Numerous requests for advice and materials on such matters are received from both individuals and communities. Assistance in response to these requests is regularly supplied and many communities use the informational kits prepared by the Association for this purpose.

Association survey teams regularly inspect for accreditation all dental schools and schools of dental hygiene in Canada, thereby assuring that the standards of dental education throughout the nation are maintained at the highest possible level. A reciprocal arrangement is maintained with the American Dental Association whereby each Association recognizes the schools accredited by the other.

The Association provides guidance and assistance to local dental groups seeking to improve the position of the dentist in hospitals. National guidelines for dental services and dental internships have been developed. These form the basis of the Association's programs for accrediting dental departments and dental internships in Canadian hospitals.

The Association has established and keeps under review a Code of Ethics designed to maintain the highest possible standards of dental practice and to protect the public from improper and unethical practices and treatments. The Code serves as a guide to provincial dental organizations and thus encourages uniformity in practice ethics throughout Canada.

Each member of the Association receives a subscription to the *Journal of the Canadian Dental Association*, Canada's leading dental publication. The bilingual Journal is published monthly and contains the latest available reports on scientific advances and dental techniques plus numerous features such as

news of dentistry, reports from Association agencies, reviews of current dental literature, case reports, calendars of dental meetings, and through its letters to the editor columns provides a medium for self-expression by individual members of the Association. The *Governors Letter* and *Dental Economic News Letter* are published monthly. These publications are available to members on request. The Association also publishes a news bulletin highlighting the major events of the annual business meeting and convention. This *Bulletin* is produced in English and French and is distributed to all Association members. Adopted policy statements and other monographs on issues affecting dental practice are printed and circulated to the membership. Recent examples are the Policy Statement on Auxiliary Personnel, Policy Statement on Projection of Dental Services and publications regarding the relative value fee system and group practice. The Association also publishes an annual Directory which provides the names and addresses of all members.

At its headquarters in Toronto the Association operates an up-to-date dental library, recently named The Sydney Wood Bradley Memorial Library. More than 4,000 scientific and technical books as well as numerous dental periodicals from around the world are available for loan to members of the Association. Members are encouraged to visit the Library; in addition a postage free mailing service is available. The Library's most recent acquisitions are listed periodically in the Journal.

Each year the Association holds a scientific session which features reports from recognized authorities in all major dental fields, a large number of clinical presentations, scientific films, and many health and commercial dental exhibits. These meetings are an excellent source of valuable new information for the practising dentist and, through him, for his patients.

The Association sponsors a variety of insurance coverages for its members. Life, sickness and accident, income protection, office overhead, retirement-savings and other types of insurance are available on a group basis. This results in direct sav-

ings as against comparable coverages available on the open market.

The Association cooperates with dental organizations of foreign countries, the World Health Organization and the Fédération Dentaire Internationale. This facilitates the exchange of scientific and technical information among dental scientists in all parts of the world.

The Association presents to federal authorities the views of Canada's dentists on matters affecting the oral health of the public and the practice of dentistry. Carefully prepared briefs are delivered as required to appropriate government agencies following approval by the Board of Governors or Executive Council. Recent submissions have dealt with health care services, income and sales taxes, tariffs and unemployment insurance.

Agencies of the Association work closely with allied dental groups and representatives of other health professions in the formulation of programs designed to improve health services for the people of Canada. In this work the Association endeavours to advance applicable Association policies, such as those on auxiliary services and hospital dental services.

The Association maintains an up-to-date list of Canadian dentists and their addresses. An IBM punch card system is used from which mailing lists for the Journal and for other publications and services can be prepared.

The Association has responded to the need for dental specialties and specialists by establishing requirements for the recognition of special areas of dental practice.

The Association conducts numerous surveys and special studies relating to the conditions of dental practice, dental health services, distribution of dentists, applicants and applications to dental schools, dental students' register, dentists' incomes and expenses, dental needs of the population and related matters. Most of the surveys and studies must be repeated at regular intervals so that up-to-date information is always available. The resulting information helps to determine the most effective use of available dental resources and provides factual information about the practice of dentistry and the en-



The office of Secretary of the Association on the first floor of the CDA Headquarters Building.

Le bureau du secrétaire de l'Association se trouve au premier étage de l'immeuble qui sert de siège social à l'ADC.

vironment in which dental services are offered to the public. The Association has become the leading authority in this area and its information is regularly relied upon not only by councils and committees, corporate members, dental schools and the profession in general but by provincial and federal government agencies, public media and other interested parties.

The Association administers a dental aptitude test program designed to assist the prospective student to assess his aptitude for a career in dentistry and to help dental schools in their selection of first year students. Semi-annual test sessions are held at selected Canadian universities and participation is either required or recommended by every Canadian dental school. The program is also responsible for continuing follow-up studies and other educational research. It serves the Ca-

nadian community by helping the schools select the most qualified students, by reducing wastage through withdrawals and failures, and by producing graduates with the highest aptitude for serving the public and the profession.

The Association conducts a continuing program to promote and encourage dental research for the benefit of the public and the profession. The Association has for many years provided research studentships and fellowships to assist qualified students in pursuing teaching or research careers. At regular intervals the Association has also made surveys of dental research facilities in Canada and has taken every opportunity to encourage outside support for their expansion. The CDA supports research conferences where dental researchers can benefit from an exchange of ideas. It also formulates and

presents to the profession and the public statements on scientific subjects, such as fluoridation and the control of radiation hazards in the use of dental x-ray apparatus.

Much of the work of a national professional association, though it is imperceptible, is nevertheless vitally important for every dentist. A corporate member, required to explain to legislators an important aspect of dental practice, may justifiably look to the Canadian Dental Association for aid and support. Called upon to defend a legitimate right, another corporate member may likewise turn to the national association for guidance. Though primary jurisdiction over health may reside with the provinces, the repercussions transcend the provincial domain. This inescapable fact is mirrored by the health professions: none can attain their full potential without the support of seasoned national organizations that are ever alert to the social and political climate of the hour. It is in this role that the Canadian Dental Association makes a vital, yet intangible, contribution to Canadian dentistry.

Projected Services

The aforementioned services developed gradually. Their expansion paralleled the growth of the Association, the increased demand for dental services by the public, and greater appreciation and awareness on the part of governments, industry and social agencies of the essential role dental health plays in the total health of the Canadian community. Looking ahead, we anticipate additional and enlarged dental schools that guarantee a continuing increase in the number of practising dentists, a rapidly expanding population, rising levels of education and income, new technological developments, and expanded coverage for dental insurance. All of this will promote increased demand for dental care. Changing attitudes concerning the right of the individual to health services of all kinds, and the introduction of government programs, indicate that dental care may soon be made available to everyone regardless of his economic status or

place of residence. It follows that our efforts must be augmented if the Association is to continue to provide services on the present scale to a larger public and an expanding profession. This alone will require increased expenditures, headquarters facilities and personnel.

No viable organization stands still. The CDA, recognizing its professional responsibility, constantly strives toward its fundamental objectives: improvement of its service to the public and the profession. While the ultimate in desirable Association services is hard to define, more could be accomplished in each area of activity to the advantage of both groups. Priorities and resources are the only limiting factors.

Three aspects deserve consideration as we contemplate the future role of the Association: extension of current services to a larger number of dentists and an increasingly interested public; expansion and elaboration of existing services; and the addition of new services.

Priorities for services will vary from time to time according to the social, economic and other environmental pressures exerted on the profession. One of the Association's major responsibilities is to identify such priorities when they arise and to concentrate its efforts accordingly. A recent decision which accords top priority to the development of a dental care program for children provides a good example of the Association's desire to meet such an obligation. Dental health education, the promotion of preventive programs, the dissemination of factual information on dentistry to the public, intra-professional communication, liaison with government agencies, surveys and special studies are examples of other Association activities requiring constant elaboration. Any one of these may from time to time require priority consideration.

This five year projection of Association activities proposes some additional services. These include broader representations on certain committees and the establishment of active public information and government relations departments. There will unquestionably be many other demands on the Association as it strives to meet rapidly changing social, economic

and political conditions.

The Board of Governors has already authorized the enlargement of the Auxiliary Services and Dental Services Committees in order to establish a broader representative base for these important groups and to accelerate and improve intraprofessional communication on topics of immediate concern to Canadian dentists. These changes will result in decisions and actions by the Association that are more representative of the wishes of its members.

For many years the Association has frequently been criticized for not being sufficiently active in the area of public relations. Heretofore its efforts were necessarily confined to dental health education. Now, more than ever, it is imperative to acquaint the public with the true facts concerning the practice of dentistry and the services which the profession can provide. Only with this knowledge can the public be expected to cooperate intelligently with the profession in planning for the future. This requires aid from specially trained personnel with adequate facilities. It is not a task for amateurs or for those who can only devote their spare time. There is probably no more important role for the Association at present than to defend its title as undisputed authority on matters related to the practice of dentistry. This it can only do through a continuing program of public information and by providing irrefutable facts when called upon or when the interests of the profession dictate that it do so.

For many years, too, the Association has been cognizant of the need for closer and more frequent liaison with the federal government. As health programs are developed and implemented there is also a greater and continuing need for legal advice and consultation. Accordingly, it is now propitious to consider a mechanism whereby both requirements may be satisfied. For example, the establishment of a government relations department, preferably located in Ottawa and directed by a lawyer who is knowledgeable in Association affairs, could make day-to-day contact with government officials and legislators and their advisers possible. One of the duties of such a department would be to stay abreast of the increasing amount

of health legislation, particularly that affecting the dental profession, and to report in such a way that the officials and agencies of the Association may consider the legislative items in proper perspective. Another and probably even more important role for a government relations department would be to represent the CDA in attempting to shape and guide health programs of the federal government that have an impact on the dental health of the nation or the legitimate interest of the dental profession. Additional duties might include the procurement, evaluation and transmittal of legislative proposals and administrative regulations; and arranging meetings between dental leaders and key government officials.

Only a few examples of new services which the Association could perform to the advantage of the public and the profession have been mentioned. Others will become apparent in due course. Members of the Association must therefore determine the nature and scope of services they wish their Association to perform on their behalf. Having made this determination, the full support of every member is necessary if the Association is to be effective in discharging the responsibilities assigned to it.

Projected Financial Requirements

The main items of revenue and expenditure from 1963 to 1967 were charted to ascertain trends over the past five years. On the assumption that similar patterns will continue, they give some indication of further changes. By projecting the number of dentists in Canada through the next five year period, applying certain mathematical formulae to the trends established in the previous five years, and anticipating specific events, it is possible to develop certain budgetary projections for the next five year period. It should be emphasized at the outset that every effort has been and will continue to be made to reduce costs and increase efficiency in all areas of activity.

As of January 1967 there were 6,532 dentists licensed in Canada, 533 more than in 1963. The number is gradually increas-

TABLE 1 Actual and projected revenues 1963 through 1973.

Revenue items	1963 Actual	1965 Actual	1967 Actual	1969 Projected	1971 Projected	1973 Projected
Recurring	\$	\$	\$	\$	\$	\$
Associate memberships	1,446	911	1,018	1,200	1,200	1,200
Grants — corporate members	213,110	221,509	255,768	266,500	282,000	298,000
Journal (gross)	3,696	3,203	6,400	6,200	7,000	7,000
National convention	2,664	1,467	2,215	2,500	1,000	2,000
Publications other than Journal	14,906	10,659	12,387	15,500	15,500	15,500
Student memberships				2,000	2,000	2,500
Journal subscriptions	1,227	1,364	1,373	1,500	2,000	2,000
Transfer — interest (Canadian Dental Research Foundation)	597	763	580	600	600	600
Subtotal	237,646	239,876	279,741	296,000	311,300	328,800
Less grants from corporate members	213,110	221,509	255,768	266,500	282,000	298,000
Other	24,536	18,367	23,973	29,500	29,300	30,800
Non-recurring						
Donations	4,350	3,000	8,000			
Subtotal	4,350	3,000	8,000			
Totals	241,996	242,876	287,741	296,000	311,300	328,800

ing. It has been calculated that by 1969 there will be 6,800; in 1971, 7,200; and by 1973, 7,600. These calculations take into consideration the increasing capacity of Canadian dental schools, retirements, deaths and other attritions.

REVENUE

The actual revenue from corporate members' grants in 1967 was \$255,768 (Table 1) or \$5,512 less than might be expected on the basis of \$40 for each of the 6,532 dentists licensed in Canada as of January 1, 1967. The difference is accounted for by retirements, deaths and changes in membership category between the first of January and the forwarding of the corporate grants to CDA headquarters. This difference occurs each year and averages about 2 per cent of the total anticipated revenue based on the number of dentists as of January 1 in any given year.

The revenue from corporate members for 1969, 1971 and 1973 is therefore estimated on the basis of the present per capita rate of \$40 and the projected number of dentists less 2 per cent of the total and rounded to the nearest \$500.

An examination of the actual figures from 1963 through 1967 shows that, except for grants from corporate members, revenue during these years was relatively constant. Only minor fluctuations occurred from year to year in the other items. There is no reason to believe that this pattern will change in the next five year period. Therefore, unless some entirely new source of funds can be found, grants from the corporate members provide the only real and significant variable with regard to the Association's revenue.

EXPENDITURES

Table 2 shows actual and projected expenditures for 1963 through 1973.

1. The actual expenditures for 1963, 1965 and 1967 are recorded primarily for historical purposes. By separating out the main non-recurring items, general trends are established in most areas; but because of the variables from year to year, precise percentage increments that might be applied to the years 1969, 1971 and 1973 are not applicable. Projections in Table 2 are based on a continuation of present staff and methods of operation. They are

TABLE 2 Actual and projected expenditures, 1963 - 1973.

Expenditure items	1963 Actual	1965 Actual	1967 Actual	1969 Projected	1971 Projected	1973 Projected
Recurring	\$	\$	\$	\$	\$	\$
Annual meeting	11,166	13,303	12,648	16,000	18,000	20,000
Contingency	2,456	6,524	1,465	10,000	11,000	12,000
Expense reimbursement	21,701	21,250	23,104	27,000	30,000	33,000
Furniture and fixtures	3,654	2,678	3,942	4,000	4,500	5,000
Grants	20,862	22,441	22,906	24,000	24,000	25,000
Insurance	841	1,259	1,698	3,000	2,000	2,500
Legal and audit	1,225	1,243	1,600	2,500	3,000	3,000
Office expenses	4,729	7,810	7,720	8,000	9,000	10,000
Postage	3,725	4,410	4,552	5,500	6,000	6,500
Property expenses	2,035	5,914	9,612	9,000	9,500	10,000
Taxes (city)	1,213	3,718	5,300	6,500	7,500	8,500
Publications other than Journal	26,385	27,244	32,374	33,000	35,000	37,000
Salaries	86,219	100,395	115,678	144,000	164,000	187,000
Salary expenses	10,696	10,139	12,428	17,000	19,000	22,500
Telephone and telegraph	1,361	2,210	2,478	3,000	3,000	3,000
Translations	650	759	2,124	4,500	5,000	5,500
Subtotal	198,918	231,297	259,629	317,000	350,500	390,500
Non-recurring						
Expense reimbursement	3,000					
Depreciation	4,542	10,330	10,693			
Furniture and fixtures		6,097				
Grants		4,714				
Publications other than Journal		2,770				
Salaries		11,866				
Salary expenses		1,944				
Transfer to reserve	15,000	12,500				
Transfer to Canadian Dental Research Foundation	500					
National Cancer Institute project	1,350					
Subtotal	24,392	50,221	10,693			
Total	223,310	281,518	270,322	317,000	350,500	390,500

rounded to the nearest \$500.

2. Annual Meeting: The costs of the annual meetings vary with location.

3. Contingency: In the projected years no allowance has been made for non-recurring expenditures. These will have to come from the contingency account.

4. Expense Reimbursement: The 1969 expense reimbursement figure is estimated on the basis of anticipated meetings and travel for that year. The 1971 and 1973 figures are calculated on an increment of approximately 5 per cent per year.

5. Furniture and Fixtures: Totals shown are based on estimated replacements and additions.

6. Grants: Unless the Association makes

new grant commitments, the changes for this item in the immediate future should be minimal.

7. Insurance: The insurance on the headquarters building is payable every three years. 1969 is the next due date; therefore the amount in the 1969 column reflects this outlay as well as the increase in costs of travel and other insurance coverage.

8. Legal and Audit: The actual amount for 1967 was by special agreement, and will not apply in other years. In addition, new activities such as student memberships are increasing the work load of the audit.

9. Office Expenses: These are arbitrary estimates, but they are related to past experience.

10. Postage: There are indications that postage rates will increase. A growing membership also requires more individual and larger general mailings and, therefore, increased postage costs.

11. Property: This item includes light, heat, water, repairs and maintenance. Projections are based on small increases in the cost of services and continuing repairs and maintenance to an older building.

12. Taxes: City taxes have been increasing every year. The forecast is that this trend will continue.

13. Publications other than Journal: This item includes *Transactions*, pamphlets, films, etc. An attempt is made to have the projections include not only increased costs for each article but also the need to produce more articles as the membership of the Association increases.

14. Salaries: As a result of a temporary arrangement, the 1967 actual amount spent on salaries does not include the salary of a senior member of the headquarters staff, although the Association did benefit from his services during this period. Two other staff additions were made in 1967 in order to improve and expand public information activities, particularly in respect to the promotion of fluoridation. In order to establish a basis for salary projections into 1969 and future years the sum of \$12,000 was added to the 1967 actual figure to compensate for these shortcomings in the actual total as shown. Projected figures are calculated on the basis of 14 per cent increments for each two year period.

It is noteworthy that while average wages in Canada increased by 6.1 per cent a year from 1964 to 1967 and by 12.2 per cent from 1965 to 1966 (Dominion Bureau of Statistics), the average yearly salary increase for CDA employees in the same period has been less than 4 per cent.

The Consumer Price Index has been rising at about 3.6 per cent per year. The modest 7 per cent annual salary increment used in the projections is therefore made up of 3.6 per cent to compensate for consumer price increases and 3.4 per cent to recognize quality and length of service.

15. Salary Expenses: The amounts in the projection columns are calculated on the basis of 12 per cent of actual salaries.

They include pension plans, health insurance, unemployment insurance and workmen's compensation.

16. Telephone and Telegraph: While moderate increases in the cost of telephone and telegraph services are expected to continue, total costs are likely to be close to the \$3,000 mark for the years under consideration.

17. Translations: The rather sharp increase in translation costs results from a change-over from volunteer non-professional translators to a professional translation agency for most of the Association's translation services. It is also expected that the need for translation is likely to increase.

18. Depreciation: This item in the non-recurring list includes depreciation on the headquarters building and on furniture and fixtures. It is a bookkeeping entry and does not represent actual dollars expended and is therefore excluded from projected expenditures.

COMPARISON OF REVENUE AND EXPENDITURE TOTALS

By comparing total projected expenditures for 1969, 1971 and 1973 with anticipated revenue for the same years, it is evident that the cost of maintaining the present headquarters facility will increase more rapidly than will revenue from the slowly expanding number of licensed dentists, assuming of course that the per capita grant remains as it is today. By 1969 the projected costs will exceed anticipated revenue by \$21,000, by 1971 the difference will be \$39,200 and by 1973 it will be \$61,700.

The Association's costs are projected to rise at an average annual rate of approximately 7 per cent, although dentists and therefore Association revenue are increasing at a rate of only 2.5 per cent per annum. One might ask why the Association costs should escalate so much faster than the number of dentists. The answer is that our costs are influenced by two separate factors. One of them concerns the personnel required to serve an ever larger number of dentists. The other results from inflationary trends that affect wages and

uncontrollable overhead items such as taxes, heat, services, etc. — trends that are unrelated to the number of dentists to be served.

ADMINISTRATION

CDA headquarters staff has grown over the past 25 years from a part-time secretary to the present 19 full-time employees and a part-time Associate French editor located in Montreal. Additions have been made as administrative responsibilities and demands from the profession for more services have multiplied. Socio-economic changes, increasing demands for all types of health services, and the attention being given to the introduction of dental health plans will continue to augment the need for organizational responsibilities and services. Each new dentist whose name is added to the Association's membership list and each new service that is undertaken adds to the workload of one or more of the headquarters staff. The recently introduced aptitude test and student member programs are good examples of new important services that involve considerable additional staff time. Headquarters is also understaffed in relation to its desire and ability to carry out efficiently assignments directed by Association policies and to fulfil adequately the increasing number of requests for information and assistance that are received from all quarters.

Two distinct aspects must be considered in projecting headquarters development five years ahead. One is normal growth resulting from the need to serve more dentists. The other is the expansion required to take on new assignments, to improve services and to assume additional responsibilities in the interests of the profession and the public it serves. More and better public relations, improved intraprofessional communications and closer government liaison are examples of this latter type of expansion.

Most of the Association's present councils and committees consist of three to seven members. This means that all provinces are not represented. The problem of intraprofessional communication and co-operation between provincial and national associations is thereby compounded. Councils and committees made up of a representative from each corporate member, preferably nominated by the corporate members from comparable provincial committees, could increase the potential for continuity of thought and action between provincial and national groups and thus improve the effectiveness of both. The Board of Governors has already recommended that this policy be followed for the Auxiliary Services and Dental Services Committees (1967 *Transactions*: 83). Such a system would obviously cost more than the present one. It is estimated that expense reimbursements for councils and committees would be doubled.

Four additional non-executive employ-

TABLE 3 Projection of expenditures for expanded and additional services 1969, 1971 and 1973.

Items		1969	1971	1973
		\$	\$	\$
1.	4 non-executive staff salaries	20,500	23,500	26,500
2.	Salary expenses for (1)	2,500	3,000	3,000
3.	Additional expenses for enlarged councils and committees	22,000	23,500	25,500
4.	3 senior personnel salaries	40,000	45,500	52,000
5.	Salary expenses for (4)	5,000	5,500	6,000
6.	3 supporting staff for (4) — salaries	15,000	17,000	19,500
7.	Salary expenses for (6)	2,000	2,000	2,500
8.	Rent — Ottawa office	2,000	2,500	3,000
9.	Office expenses for new departments including furniture and fixtures	4,000	4,500	5,000
Total		113,000	127,000	143,000

TABLE 4 Projection of expenditures by groups of items, for expanded and additional services in 1969, 1971 and 1973.

Items		1969	1971	1973
1.	Addition of 4 non-executive staff (salaries and salary expenses)	\$ 23,000	\$ 26,500	\$ 29,500
2.	Enlarged councils and committees	22,000	23,500	25,500
3.	Addition of 3 senior and 3 supporting staff and office expenses	68,000	77,000	88,000
Total		113,000	127,000	143,000

ees are necessary simply to meet the increased demand for services without for the moment considering expanded or new services. The expansion of services referred to in the preceding paragraphs will necessitate three additional senior personnel with three further supporting employees.

Table 3 provides a projection of expenditures related specifically to the expanded and additional services. The same percentage increments for salaries and salary expenses are used in this table as in the expenditure projections in Table 2. Again, the amounts are rounded to the nearest \$500.

Table 4 is simply a variation of Table 3 designed to make three groupings of the services, and to provide estimated total expenditures for each grouping. The totals are subsequently used to calculate the required per capita grant in order to meet the varying combinations of services (Table 5).

CALCULATION OF PER CAPITA GRANT

The method of calculation may be illustrated as follows: For 1969 the total of projected expenditures for the Association, assuming a continuation of the present staff and as nearly as possible a continuation of present services, is \$317,000 (Table 2). Fixed revenue for 1969 (all except that which comes from corporate members' grants) is \$29,500 (Table 1). The difference of (\$317,000-\$29,500) \$287,500 is the amount that will have to be met by the corporate members. In 1969 it is expected that there will be 6,800 licensed dentists in Canada. Therefore the grants

would need to be based on $\$287,500 \div (6,800 \text{ less } 2 \text{ per cent})$ or \$43 per dentist in order to meet this specific set of circumstances.

As one more illustration we may consider 1971 and circumstances that call for the addition of the four non-executive employees required to meet the increasing volume of services and the participation of enlarged councils and committees. In this instance the necessary per capita grant is calculated as follows:

Per capita grant =	
1971 expenditures	\$350,500 (Table 2)
plus expenses:	
4 employees	26,500 (Table 4)
councils, committees	23,500 (Table 4)
	400,500
less fixed revenue	29,300 (Table 1)
	371,200
divided by the	
number of dentists	371,200
	$\div (7,200 \text{ less } 2 \text{ per cent}) = \53

Table 5 shows a summary of calculated per capita grants necessary to offset projected expenses for four different sets of circumstances, each having a different service potential for CDA members. Calculations are made according to the previous illustrations. Obviously, other groupings and the addition of other services are possible. Decision as to the specific services expected by the profession must be made before logical planning for future action is possible.

The Table 5 summary clearly illustrates that if the current economic trends persist, the Association's costs of continuing the services now being provided to its members and maintenance of its head-

TABLE 5 Summary of projected total and per capita expenses for varying circumstances in 1969, 1971 and 1973.

Year and circumstances	Total expenses	Fixed revenue	Expenses that must be met by corporate grants	Ex- pense per capita
1969: 6,800 dentists less 2% (6,664)	\$	\$	\$	\$
No increase in staff — reduced services	317,000	29,500	287,500	43
Increased non-executive staff — same services	340,000	29,500	310,500	47
Increased non-executive staff — enlarged councils and committees	362,000	29,500	332,500	50
Increased staff (executive and non-executive) — enlarged councils and committees	430,000	29,500	400,500	60
1971: 7,200 dentists less 2% (7,056)				
No increase in staff — reduced services	350,500	29,300	321,200	46
Increased non-executive staff — same services	377,000	29,300	347,700	49
Increased non-executive staff — enlarged councils and committees	400,500	29,300	371,200	53
Increased staff (executive and non-executive) — enlarged councils and committees	477,500	29,300	448,200	63
1973: 7,600 dentists less 2% (7,448)				
No increase in staff — reduced services	390,500	31,200	359,300	48
Increased non-executive staff — same services	420,000	31,200	388,800	52
Increased non-executive staff — enlarged councils and committees	445,500	31,200	414,300	56
Increased staff (executive and non-executive) — enlarged councils and committees	533,500	31,200	502,300	67

TABLE 6 Summary of five year projection. Total revenue, expense and per capita costs.

	1963 Actual	1965 Actual	1967 Actual	1969 Projected	1971 Projected	1973 Projected
Total revenue based on current \$40 per dentist (Table 1)	\$ 241,996	\$ 242,876	\$ 287,741	\$ 296,000	\$ 311,300	\$ 328,800
Expenditures (Table 2)	223,310	281,518	270,322	317,000	350,500	390,500
Excess revenue or (deficit)	18,686	(38,642)	17,419	(21,000)	(39,200)	(61,700)
Number of dentists less 2%			6,401	6,664	7,056	7,448
Additional amount required per dentist over present fee of \$40 to achieve each of the following objectives:						
1. Increase in fee required to eliminate deficits shown above. Same 1967 staff but reduced service				3.00	6.00	8.00
2. Increase in fee required for 4 additional staff members to provide present level of service (Table 4)				3.00	4.00	4.00
3. Increase in fee required to enlarge councils and committees (Table 4)				3.00	3.00	4.00
4. Increase in fee required for 3 additional executive personnel and supporting staff to provide expanded service (Table 4)				10.00	11.00	12.00

quarters facility will soon increase beyond the limits of its revenue, based on \$40 per licensed dentist. Expanded services will cost still more. Financial support to the extent determined by the choice of services is essential if the Association is to remain a viable organization.

The per capita requirements shown in Table 5 are cumulative totals required to meet varying circumstances. The table does not illustrate the results should grant increases not be available. Table 6 is therefore included. It illustrates not only the Association's deficit position if the grants are not increased; it also shows the projected non-cumulative separate costs for the different service combinations.

CDA HEADQUARTERS

Accommodation at headquarters for the four proposed non-executive employees would require no serious building alterations. Major changes would, however, be necessary in order to house adequately the additional personnel suggested to provide expanded services. By making such changes in the headquarters building it would be possible to provide reasonably adequate office space for all but the proposed government relations department for which an Ottawa location might be considered. The cost of altering the building could be charged as capital expenditures to the reserve.

PER DIEM ALLOWANCE

An Association expenditure that has not been considered in the foregoing projections is a per diem allowance for the president. Like other activities, the call on the president's time continues to increase. He is invited to address more groups and attend more meetings than ever before. The equivalent of between two and three months out of office has been an average commitment for presidents for the last several years. Reimbursement on a per diem basis is one method by which the Association may share with the president part of the responsibility for loss of in-

come during his presidential term. If 50 days of the president's time is involved and the per diem rate were \$100, the Association's annual responsibility might be in the neighbourhood of \$5,000. Added to the previous projections, this commitment, based on the present number of dentists in Canada, would increase the per capita expenditure by approximately one dollar.

SUMMARY

1. It is estimated that there will be 6,800 licensed dentists in Canada by 1969, 7,200 by 1971, and the number will have increased to 7,600 by 1973.

2. If the present inflationary trend persists, services now provided by the Association cannot be continued without increased expenditures.

3. A growing CDA membership requires an increasing amount of service provided by the Association.

4. Certain additional Association services are suggested. If introduced, they will make further demands on staff and other facilities.

5. Expanded council and committee activity is suggested. It will cost more to operate but should strengthen relations between provincial and national dental groups and improve the effectiveness of both.

6. A reorganization of the headquarters facility is outlined that includes an expansion of both administrative and non-administrative staff.

7. The only significant revenue item that can be altered to make up for increased expenditures is the corporate member grant.

8. A method of projecting CDA revenue and expenditures has been developed by which the per capita grant necessary to achieve given objectives can be calculated. It remains for the Association to define its objectives in terms of the services it wishes to provide.

9. If an increase in headquarters personnel is contemplated beyond that outlined in this presentation, it will be necessary to consider a further addition to the building or a move to other quarters.

Estimation des services et des besoins fiscaux de l'ADC, pour les cinq prochaines années

Conseil exécutif

Ce bilan expose les nombreux services que l'Association dentaire canadienne fournit actuellement et qu'elle doit continuer à fournir à ses membres. Il est essentiel d'étendre plusieurs des programmes en cours et d'en inaugurer d'autres, pour que la profession soit en mesure de rendre les services que l'on attend d'elle, dans les cinq prochaines années. L'état de compte analyse le coût des services actuels. Il estime aussi le coût du maintien de ces services, celui de l'extension de certains programmes existants et de l'addition de certains programmes nouveaux. Afin de pouvoir fournir ces services, le Conseil exécutif recommande au Conseil des Gouverneurs que les subsides annuels, octroyés par les organisations membres, soient calculés sur la base de \$65 par dentiste ayant le droit de pratiquer, à partir de 1969.

Services actuels

Les statuts de l'ADC énumèrent les responsabilités de l'Association comme étant les suivantes:

(a) Cultiver et promouvoir l'art et la science dentaire et toutes ses branches collatérales, et protéger l'honneur et les intérêts de la profession dentaire.

(b) Conduire, diriger, encourager, appuyer ou fournir une recherche dentaire et buccale intensive.

(c) Améliorer et maintenir le caractère professionnel et l'instruction des dentistes.

(d) Promouvoir une amélioration générale, des relations sociales et de la bonne volonté parmi les membres de la profession.

(e) Eclairer et diriger l'opinion publique en ce qui concerne l'hygiène buccale, la prophylaxie dentaire, la santé

buccale et les services d'un caractère scientifique avancé.

(f) Faire connaître la dentisterie et les découvertes dentaires.

(g) Connaître et sauvegarder les intérêts communs de la profession dentaire.

(h) Publier des journaux dentaires, des rapports et des traités.

(i) Faire toutes les démarches judiciaires, ou autres, et tout ce qui peut être nécessaire pour la réalisation des buts sus-mentionnés.

Les services fournis à ces fins servent l'intérêt public tout autant que celui de la profession. Les travaux de l'Association sont déterminés par ses 24 conseils, comités et sections. Après approbation du Conseil des Gouverneurs ou du Conseil exécutif, les décisions nécessaires sont mises en œuvre par l'intermédiaire du personnel du siège social. Une récapitula-



Two hundred and fifty-five current scientific journals from all over the world are available from the CDA Sydney Wood Bradley Memorial Library.

La bibliothèque Sydney Wood Bradley de l'ADC met à la disposition de ses lecteurs 255 journaux scientifiques du monde entier.

tion complète des activités des conseils, des comités et des sections, ainsi que des mesures prises par le Conseil des Gouverneurs figure chaque année, dans les *Délibérations de l'ADC*. Tous les membres en reçoivent un exemplaire.

Le quartier général de la profession dentaire canadienne est l'immeuble du siège social de l'Association, au 234 de la rue St. George, au cœur de Toronto. C'est de là que la profession dentaire rend ses services et répond aux questions que lui posent les visiteurs canadiens et étrangers. L'édifice abrite la bibliothèque et l'imprimerie et est organisé pour aider les sociétés et les dentistes qui sont membres de l'Association. Il offre également des salles de réunion pour les conseils, les comités et les sections. Un personnel permanent de 19 membres, dirigé par le secrétaire de l'Association, réunit tous les renseignements pertinents pour ces organismes et applique leurs décisions. Le personnel ne se contente pas de répondre aux nombreuses questions qui lui sont posées chaque jour par la poste ou par téléphone, il fournit également des renseignements à jour, sur les aspects les plus divers de

la dentisterie, les progrès dans le traitement dentaire, la prévention et le contrôle des maladies dentaires, les effectifs, les ressources dentaires et les nouvelles initiatives gouvernementales dans le domaine de la santé buccale.

Quantité de dentistes et d'agences de santé publique se servent des brochures d'informations rédigées, imprimées et vendues au prix coûtant par l'Association dentaire canadienne. Les renseignements bien documentés contenus dans ces publications évitent aux dentistes de perdre un temps précieux en recherches. De courts métrages pour la télévision, commandités par l'ADC, ont suscité également une réponse enthousiaste de la part des réseaux de télévision, dans toutes les régions du pays. Et grâce à l'utilisation constante des moyens d'information publique, l'ADC est, pour les écrivains vulgarisateurs et les annonceurs, une source de renseignements à laquelle ils peuvent se fier, sur toutes les questions concernant la dentisterie commerciale.

L'Association qui représente la dentisterie nationale, établit les grandes lignes

de programmes dentaires de toutes sortes. Les agences gouvernementales, commerciales et bénévoles demandent l'avis de l'Association pour établir des programmes dentaires prépayés, des bénéfices dentaires pour les bénéficiaires du bien-être social et autres programmes de soins dentaires financés par les Fonds publics. L'Association a réussi à persuader le gouvernement, à tous les niveaux, qu'un programme de santé dentaire pour les enfants était la seule façon rationnelle d'aborder le problème dentaire de la nation.

L'Association réunit, classe et distribue des renseignements sur les mesures préventives qui ont fait leur preuve, telles que la fluoruration de l'eau communale et l'application de ces mesures dans les localités du Canada tout entier. Des particuliers et des localités lui envoient de nombreuses demandes de conseils et de documentations sur ces questions. L'Association y répond régulièrement et beaucoup de localités se servent de la documentation préparée par l'Association.

Des équipes d'enquêteurs de l'Association étudient régulièrement l'accréditation de toutes les facultés dentaires et des écoles d'hygiène dentaire du Canada, pour que les normes de l'enseignement dentaire, dans tout le pays, soient maintenues au niveau le plus élevé possible. L'ADC a conclu un arrangement réciproque avec l'Association dentaire américaine, par lequel chacune des deux associations reconnaît les écoles accréditées par l'autre.

L'Association offre ses conseils et son aide aux groupes dentaires locaux qui cherchent à améliorer la position des dentistes dans les hôpitaux. Elle a mis au point des lignes de conduite nationales régissant les services dentaires et les internats, établissant ainsi la base des programmes de l'Association pour la reconnaissance des services dentaires et des internats dentaires dans les hôpitaux canadiens.

L'Association a établi et révisé constamment un code de déontologie destiné à maintenir les normes les plus élevées possibles de pratique dentaire et à protéger le public contre les conduites professionnelles et les traitements qui ne s'y conforment pas. Le code sert de guide aux organisations dentaires provinciales

et encourage, de ce fait, une conduite professionnelle uniforme dans tout le Canada.

Chaque membre de l'Association reçoit un abonnement au *Journal de l'Association dentaire canadienne*, qui est la publication dentaire la plus importante du pays. Ce journal bilingue est publié mensuellement et contient les derniers rapports sur les progrès scientifiques et les techniques dentaires, plus de nombreux articles concernant les nouvelles en dentisterie, les rapports des organismes de l'Association, des critiques de la littérature dentaire actuelle, des rapports de cas, des agendas de réunions dentaires. Grâce à sa rubrique, lettres au rédacteur, il fournit aux dentistes membres de l'Association le moyen de s'exprimer. La *Lettre aux Gouverneurs* et les *Nouvelles économiques dentaires* sont publiées tous les mois. Les publications sont à la disposition des membres, sur demande. L'Association publie aussi un *Bulletin* qui couvre les principales réunions et congrès annuels. Ce *Bulletin*, publié en français et en anglais, est distribué à tous les membres de l'Association. Les déclarations de principes et les monographies sur des questions qui affectent la pratique dentaire sont imprimées et distribuées aux membres. On peut en donner des exemples récents: la déclaration de principe sur le personnel auxiliaire, la déclaration de principe sur les services dentaires éventuels et les publications concernant le système de valeur relatif des honoraires et de la pratique collective. L'Association publie également un annuaire qui donne les noms et les adresses de tous ses membres.

A son siège social à Toronto, l'Association dirige une bibliothèque dentaire constamment mise à jour, qui vient d'être nommée la bibliothèque Sydney Wood Bradley. Les membres de l'Association peuvent y emprunter plus de 4,000 ouvrages scientifiques et techniques ainsi que de nombreuses publications dentaires en provenance du monde entier. Les membres sont invités à se rendre à la bibliothèque et un service postal gratuit est mis à leur disposition. Le *Journal* énumère périodiquement les acquisitions les plus récentes de la bibliothèque.

Chaque année, l'Association organise

une réunion scientifique pour présenter les rapports d'autorités reconnues dans tous les principaux domaines dentaires, faire de nombreuses démonstrations cliniques, présenter des films scientifiques, et exposer un grand nombre de produits servant à la santé générale et dentaire. Ces réunions sont une excellente source de renseignements pour le dentiste et, par son intermédiaire, pour ses patients.

L'Association commande une variété d'assurances pour ses membres: assurance-vie, assurance-maladie, assurance-accident, assurance couvrant les revenus, les frais généraux, la retraite, l'épargne et autres types d'assurances offertes sur une base collective. Ceci leur permet d'épargner de l'argent, les coûts étant inférieurs à ceux en cours sur le marché.

L'Association coopère avec les organisations dentaires des pays étrangers, l'Organisation mondiale de la santé et la Fédération dentaire internationale, pour promouvoir l'échange de renseignements scientifiques et techniques entre tous les dentistes du monde.

L'Association présente aux autorités fédérales les opinions des dentistes du

Canada, sur les questions concernant la santé buccale du public et la pratique dentaire. Des mémoires, soigneusement préparés, sont présentés au fur et à mesure des besoins, aux agences gouvernementales concernées, après approbation du Conseil des Gouverneurs ou du Conseil exécutif. Les soumissions récentes traitaient des services de santé, des impôts sur le revenu et des taxes de vente, des tarifs douaniers et de l'assurance-chômage.

Les organismes de l'Association travaillent en coopération étroite avec les groupes dentaires alliés et les représentants d'autres professions du domaine de la santé, pour mettre au point des programmes destinés à améliorer les services offerts au peuple canadien. C'est dans ce cadre que l'Association s'efforce d'appliquer les lignes de conduite qu'elle a adoptées en ce qui concerne, par exemple, les services dentaires et les services auxiliaires dans les hôpitaux.

L'Association garde à jour la liste des dentistes canadiens et leurs adresses. Elle utilise maintenant un système de cartes perforées IBM pour permettre de pré-



The Association's boardroom where councils and committees formulate policy proposals for the Board of Governors.

La salle du Conseil de l'Association où les conseils et les comités déterminent les lignes de conduite qui seront soumises à l'approbation du Conseil des Gouverneurs.

parer les listes postales des journaux et autres publications et services.

L'Association s'est occupé des spécialités dentaires et des spécialistes en fixant les normes pour la reconnaissance des domaines spéciaux de la pratique dentaire.

L'Association organise de nombreuses enquêtes et études spéciales sur les conditions de la pratique dentaire, les services de santé buccale, la répartition des dentistes, les candidats et les demandes d'inscription aux facultés dentaires, le secrétariat des étudiants dentistes, les revenus et les dépenses des dentistes, les besoins dentaires de la population et autres questions connexes. La plupart de ces enquêtes et de ces études doivent être refaites à intervalles réguliers, de façon à disposer toujours de renseignements valables. Les renseignements recueillis aident à déterminer la façon la plus efficace d'utiliser les ressources dentaires disponibles et révèlent les réalités de la pratique dentaire et de l'ambiance dans laquelle les services dentaires sont offerts au public. L'Association est devenue la principale autorité dans ce domaine et les renseignements qu'elle réunit sont utilisés, non seulement par ses conseils, ses comités, ses organisations membres, les facultés dentaires et la profession en général, mais aussi par les agences gouvernementales, provinciales et fédérale, les organes d'information publique et autres parties intéressées.

L'Association administre un programme de tests d'aptitude dentaire pour aider les étudiants éventuels à évaluer leurs aptitudes dans ce domaine et pour permettre aux facultés dentaires de choisir leurs étudiants de première année. Des sessions de tests semi-annuelles se tiennent dans des universités canadiennes et toutes les facultés dentaires du Canada exigent ou recommandent la participation à ce programme. Le programme comporte également des études et autres recherches sur l'enseignement. Il sert la communauté canadienne en aidant les facultés dentaires à choisir les étudiants les plus qualifiés, réduisant ainsi le nombre d'étudiants qui abandonnent ou qui échouent, et il assure que les diplômés seront capables de bien servir le public et la profession.

L'Association dirige un programme continu dans le but d'encourager et de promouvoir la recherche dentaire, pour le bénéfice du public et de la profession. L'Association a offert, pendant de nombreuses années, des bourses de recherche pour aider les étudiants qualifiés à entreprendre des carrières dans l'enseignement ou la recherche. A intervalles réguliers, l'Association a aussi entrepris des enquêtes sur les installations de recherche dentaire au Canada, et a saisi toutes les occasions d'encourager des appuis extérieurs pour permettre leur expansion. L'ADC est en faveur de conférences sur la recherche où les chercheurs dentaires peuvent échanger leurs idées. Elle expose et présente, à la profession et au public, des sujets scientifiques tels que la fluoration et le contrôle des dangers de la radiation, par suite de l'usage des installations dentaires de rayons-x.

Une association nationale professionnelle fait beaucoup de travail qui passe presque inaperçu, bien qu'il soit d'une importance vitale pour tous ses membres. Une organisation membre, qui doit expliquer aux législateurs un aspect important de la pratique dentaire, peut certainement demander à l'Association dentaire canadienne son aide et son appui. Si elle doit défendre un droit légitime, une autre organisation membre peut également demander à l'Association nationale de la conseiller. Bien que les lois régissant le domaine de la santé soient principalement du ressort des provinces, leurs répercussions dépassent le cadre provincial. Toutes les professions de la santé le prouvent: aucune d'elles ne peut réaliser pleinement ses possibilités sans l'aide d'organisations nationales expérimentées, pleinement conscientes du climat politique et social du moment. C'est là que l'Association dentaire canadienne joue un rôle vital, bien qu'intangible, pour la dentisterie canadienne.

Services projetés

Les services mentionnés ci-dessus se sont développés graduellement. Ils se sont étendus au fur et à mesure de l'essor de l'Association, de la demande croissante

de services dentaires et de la prise de conscience de la part des gouvernements, de l'industrie et des agences sociales, du rôle essentiel que joue la santé dentaire pour la bonne santé du peuple canadien. Nous pouvons envisager, dans l'avenir, des facultés dentaires plus nombreuses et plus importantes pour former plus de dentistes, la population augmentant rapidement. Les niveaux d'éducation et de revenus seront plus élevés, il y aura de nouveaux développements technologiques et la couverture de l'assurance dentaire s'élargira. Tout cela augmentera la demande de soins dentaires. L'attitude a changé en ce qui concerne le droit des particuliers aux services de santé de toutes sortes, et les nouveaux programmes gouvernementaux indiquent que les soins dentaires devraient être bientôt à la portée de tous, indépendamment du statut économique ou du lieu de résidence. Nous devons donc augmenter nos efforts si nous voulons que l'Association continue à fournir les mêmes services à un public plus étendu et à des dentistes plus nombreux, d'où des dépenses plus élevées, de nouvelles installations et une augmentation de personnel au siège social. Les organisations viables ne restent pas immuables. L'ADC, consciente de ses responsabilités professionnelles, tend constamment vers ses objectifs fondamentaux: l'amélioration de ses services au public et à la profession. Alors qu'il est difficile de définir ce qui constituerait des services optimum de la part de l'Association, elle pourrait faire plus dans chacun des domaines dont elle s'occupe, au bénéfice des deux groupes. Elle n'est limitée que par ses ressources et l'ordre des priorités.

Lorsque nous considérons le rôle futur de l'Association, il y a trois aspects à étudier: l'extension des services actuels à un plus grand nombre de dentistes et à un public de plus en plus intéressé; l'expansion des services existants et l'addition de nouveaux services.

L'ordre des priorités variera de temps en temps suivant les pressions sociales, économiques et autres que le milieu exerce sur la profession. L'une des responsabilités principales de l'Association est d'établir l'ordre des priorités, suivant les besoins, et d'agir en conséquence. Une décision récente d'accorder la première

place, dans l'échelle des priorités, au développement d'un programme de soins dentaires pour les enfants montre bien que l'Association a conscience de ses obligations. L'éducation concernant la santé dentaire, la promotion de programmes préventifs, la dissémination de renseignements sur la dentisterie à l'intention du public, les communications intraprofessionnelles, la liaison avec les agences gouvernementales, les enquêtes et études spéciales sont des exemples des autres activités de l'Association qui demandent une réévaluation constante. Chacune d'elles peut, à un moment ou l'autre, devenir prioritaire.

Les activités de l'Association, au cours des cinq prochaines années, devraient comprendre certains services supplémentaires: des représentations plus larges au sein de certains comités et l'établissement de services d'informations au public et de relations gouvernementales. Il est certain que l'on demandera à l'Association de fournir d'autres services, les conditions sociales économiques et politiques changeant rapidement. Le Conseil des Gouverneurs a déjà autorisé l'expansion des comités des services auxiliaires et des services dentaires afin que ces groupes importants soient mieux représentés et que les communications intraprofessionnelles s'améliorent rapidement, pour résoudre les problèmes qui demandent l'attention immédiate des dentistes canadiens. Grâce à ces changements, l'Association pourra décider et agir d'une façon plus conforme aux désirs de ses membres.

Pendant de nombreuses années, on a reproché à l'Association son activité réduite dans le domaine des relations publiques. Jusqu'ici ses efforts ne dépassaient pas le cadre de l'éducation sur la santé dentaire. Maintenant plus que jamais, il est impératif de faire connaître au public ce qu'est la pratique dentaire et quels sont les services que la profession peut fournir. Ce n'est que lorsque le public sera bien informé qu'il pourra coopérer intelligemment avec les professions, pour préparer l'avenir. Ceci demande l'aide d'un personnel spécialisé, disposant des moyens nécessaires. Ce n'est pas une tâche pour les amateurs ni pour ceux qui ne peuvent s'y consacrer qu'à temps partiel. La rôle le plus im-

portant de l'Association, à l'heure actuelle, est probablement de défendre son titre d'autorité incontestée sur les questions relatives à la pratique dentaire. Elle ne pourra le jouer que grâce à un programme continu d'informations au public et en fournissant des renseignements irréfutables, lorsqu'on les lui demande ou lorsque les intérêts de la profession l'exigent.

Depuis de nombreuses années, l'Association a conscience du besoin de relations plus étroites et plus fréquentes avec le Gouvernement fédéral. Au fur et à mesure de la mise au point et de l'application de programmes de santé, les consultations et les opinions juridiques deviennent de plus en plus nécessaires. Il convient donc maintenant de considérer l'établissement d'un mécanisme qui puisse satisfaire ces deux exigences. On pourrait établir par exemple, un service des relations gouvernementales dont le siège serait, de préférence, à Ottawa. Il serait dirigé par un avocat au courant des affaires de l'Association, qui maintiendrait un contact quotidien avec les représentants du gouvernement, les législateurs et leurs conseillers. L'une de ses responsabilités serait de se tenir au courant des projets de lois, toujours plus nombreux, concernant la santé en général et plus particulièrement la profession dentaire, et de présenter des rapports pour que les responsables et les agents de l'Association puissent considérer ces questions législatives dans leur perspective réelle. Une autre tâche, sans doute plus importante, du service des relations gouvernementales serait de représenter l'ADC auprès du Gouvernement fédéral, pour l'aider à formuler les programmes de santé qui ont une incidence sur la santé dentaire de la nation ou sur l'intérêt légitime de la profession dentaire. Ces responsabilités supplémentaires pourraient inclure l'obtention, l'évaluation et la transmission de propositions législatives et de règlements administratifs ainsi que l'organisation de réunions entre les leaders de la profession dentaire et les personnes-clés du gouvernement.

Nous avons mentionné ici que quelques-uns des nouveaux services que l'Association pourrait offrir, dans l'intérêt du public et de la profession. Il y en aura

d'autres dont la nécessité se fera sentir. Les membres de l'Association doivent, par conséquent, déterminer la nature et l'étendue des services. Cette décision prise, tous les membres devront donner leur appui total à l'Association, s'ils veulent qu'elle puisse faire face aux responsabilités qui lui sont confiées.

Estimation des besoins financiers

Nous avons étudié les dépenses et les revenus principaux de 1963 à 1967, pour en dégager les tendances qui se sont manifestées au cours des cinq dernières années. En supposant que ces tendances continuent, nous en retirons des indications concernant les changements futurs. On peut faire certaines estimations budgétaires pour les cinq années à venir, en évaluant l'augmentation du nombre de dentistes au Canada pendant cette période, en appliquant certaines formules mathématiques aux tendances actuelles et en prévoyant certains événements. Précisons au départ que nous avons fait et continuerons à faire tout ce qui est en notre pouvoir pour réduire les dépenses et augmenter notre efficacité, dans tous les domaines.

En janvier 1967, il y avait au Canada 6,532 dentistes autorisés à pratiquer, soit 533 de plus qu'en 1963. Ce nombre augmente petit à petit. On a calculé que d'ici 1969, les dentistes seraient au nombre de 6,800, qu'il y en aurait 7,200, en 1971 et 7,600, en 1973. On a fait ces calculs en prenant en considération l'augmentation de la capacité de nos facultés dentaires canadiennes, les mises à la retraite, les décès et autres facteurs pertinents.

REVENU

Le revenu en provenance des organisations membres de l'Association se montait à \$255,768 en 1967 (tableau 1) c'est-à-dire qu'il était inférieur de \$5,512 à ce qu'il aurait dû être sur la base de \$40 pour chacun des 6,532 dentistes autorisés à exercer au Canada, au 1er janvier 1967. Cette différence représente en moyenne 2 pour cent du revenu total prévu, calculé

TABLEAU 1 Revenus réels et estimés de 1963 à 1973.

Sources de revenus	1963 réel	1965 réel	1967 réel	1969 estimé	1971 estimé	1973 estimé
Permanents	\$	\$	\$	\$	\$	\$
Cotisations des membres associés	1,446	911	1,018	1,200	1,200	1,200
Subsides—organisations membres	213,110	221,509	255,768	266,500	282,000	298,000
Journal (brut)	3,696	3,203	6,400	6,200	7,000	7,000
Congrès national	2,664	1,467	2,215	2,500	1,000	2,000
Publications autres que le Journal	14,906	10,659	12,387	15,500	15,500	15,500
Cotisations des étudiants				2,000	2,000	2,500
Abonnements au Journal	1,227	1,364	1,373	1,500	2,000	2,000
Transfert-intérêt (Fondation canadienne des recherches dentaires)	597	763	580	600	600	600
Total partiel	237,646	239,876	279,741	296,000	311,300	328,800
Moins subsides des organisations membres	213,110	221,509	255,768	266,500	282,000	298,000
Autres	24,536	18,367	23,973	29,500	29,300	30,800
Dons exceptionnels	4,350	3,000	8,000			
Total partiel	4,350	3,000	8,000			
Totaux	241,996	242,876	287,741	296,000	311,300	328,800

d'après le nombre de dentistes au 1er janvier d'une année quelconque.

Le revenu par les organisations membres est donc estimé pour 1969, 1971 et 1973 sur la base du taux actuel de \$40 par dentiste et sur l'évaluation du nombre de dentistes moins 2 pour cent du total, ce chiffre étant arrondi aux \$500 les plus proches.

Un examen des chiffres de 1963 à 1967 indique, qu'à l'exception des subsides en provenance des organisations membres, le revenu au cours de ces années a été relativement constant. Les autres postes n'indiquent que des fluctuations minimales, d'année en année. Il n'y a aucune raison de penser que cela changera dans les années à venir. Par conséquent, à moins que nous ne puissions trouver une nouvelle source de revenus, ce sont les subsides fournis par les organisations membres qui représentent le seul élément variable.

DÉPENSES

Le tableau 2 indique les dépenses réelles et prévues de 1963 à 1973.

1. Les dépenses encourues en 1963, 1965 et 1967 sont indiquées surtout à titre de référence. En isolant les dépenses exceptionnelles, on a pu établir les tendances dans la plupart des domaines. Cependant, à cause des variables d'une année à

l'autre, on ne peut pas appliquer aux années 1969, 1971 et 1973 des taux d'accroissement précis. Les évaluations, au tableau 2, sont faites compte tenu du personnel et des méthodes d'opération actuelles. Elles sont arrondies au \$500 les plus proches.

2. Réunion annuelle: Le coût de la réunion annuelle dépend de l'endroit où elle se tient.

3. Imprévu: Les évaluations ne tiennent pas compte de l'éventualité des dépenses exceptionnelles. Elles devront être couvertes par le compte spécial établi à cet effet.

4. Remboursement des dépenses: Le remboursement des dépenses pour 1969 est estimé compte tenu des réunions et des voyages prévus. Les chiffres de 1971 et 1973 ont été calculés en estimant une augmentation d'environ 5 pour cent par an.

5. Mobilier et aménagement: Les totaux indiqués sont calculés en estimant les additions et les remplacements.

6. Subventions: A moins que l'Association ne prenne de nouveaux engagements, ce poste devrait varier très peu, dans un avenir immédiat.

7. Assurance: L'assurance sur l'immeuble du siège social est payable tous les trois ans. Le prochain paiement sera dû en 1969, c'est pourquoi il se trouve

TABLEAU 2 Dépenses réelles et prévues 1963 - 1973.

Dépenses	1963 réel	1965 réel	1967 réel	1969 estimé	1971 estimé	1973 estimé
	\$	\$	\$	\$	\$	\$
Répétées						
Réunion annuelle	11,166	13,303	12,648	16,000	18,000	20,000
Imprévus	2,456	6,524	1,465	10,000	11,000	12,000
Remboursement des dépenses	21,701	21,250	23,104	27,000	30,000	33,000
Meubles et aménagement	3,654	2,678	3,942	4,000	4,500	5,000
Subsides	20,862	22,441	22,906	24,000	24,000	25,000
Assurance	841	1,259	1,698	3,000	2,000	2,500
Dépenses juridiques et comptables	1,225	1,243	1,600	2,500	3,000	3,000
Frais de bureau	4,729	7,810	7,720	8,000	9,000	10,000
Timbres	3,725	4,410	4,552	5,500	6,000	6,500
Dépenses immobilières	2,035	5,914	9,612	9,000	9,500	10,000
Taxes (municipales)	1,213	3,718	5,300	6,500	7,500	8,500
Publications autres que le Journal	26,385	27,244	32,374	33,000	35,000	37,000
Salaires	86,219	100,395	115,678	144,000	164,000	187,000
Dépenses relatives aux salaires	10,696	10,139	12,428	17,000	19,000	22,500
Téléphone et télégraphe	1,361	2,210	2,478	3,000	3,000	3,000
Traduction	650	759	2,124	4,500	5,000	5,500
Total partiel	198,918	231,297	259,629	317,000	350,500	390,500
Exceptionnelles						
Remboursement des dépenses	3,000					
Dépréciation	4,542	10,330	10,693			
Meubles et aménagement		6,097				
Subsides		4,714				
Publications autres que le Journal		2,770				
Salaires		11,866				
Dépenses relatives aux salaires		1,944				
Transfert à la réserve	15,000	12,500				
Transfert à la FCRD	500					
Projet concernant l'Institut national du cancer	1,350					
Total partiel.....	24,392	50,221	10,693			
Total	223,310	281,518	270,322	317,000	350,500	390,500

dans la colonne de 1969 ainsi que l'augmentation des assurances voyage et autres.

8. Frais juridiques et comptables: Le montant de 1967 était le résultat d'une entente spéciale qui ne sera pas en vigueur pour les années suivantes. De plus, la vérification des comptes sera compliquée par l'addition de nouvelles activités, telles que le secrétariat des étudiants.

9. Frais de bureau: Ce sont des chiffres arbitraires basés sur l'expérience passée.

10. Affranchissement: Il semble que les taux d'affranchissement augmenteront. Des membres de plus en plus nombreux demandent des envois individuels, par conséquent, les frais de poste ont augmenté.

11. Propriété: Cette rubrique couvre l'électricité, le chauffage, l'eau, les répa-

rations et l'entretien. Les évaluations ont été faites sur la base d'une légère augmentation du coût des services et en tenant compte de l'ancienneté de l'édifice.

12. Taxes: Les taxes municipales ont augmenté chaque année. On s'attend à ce que cela continue.

13. Publications autres que le Journal: Cette rubrique couvre les *Délibérations*, les brochures, les films, etc. Ces chiffres tiennent compte, non seulement du coût accru pour chaque exemplaire, mais aussi du besoin de publier à plus fort tirage au fur et à mesure que le nombre des membres de l'Association augmente.

14. Salaires: Grâce à certaines ententes temporaires, les salaires totaux pour 1967 ne comprennent pas celui de l'un des membres du personnel du siège

social, bien que l'Association ait bénéficié de ses services pendant cette période. Nous avons ajouté deux employés à notre personnel en 1967, afin d'intensifier nos activités d'informations au public, pour la promotion de la fluoration en particulier. Pour estimer les salaires de 1969 et ceux des années à venir, nous avons ajouté \$12,000, ce qui compense l'insuffisance du total actuel. Nous avons ensuite établi nos chiffres sur la base d'une augmentation de 14 pour cent, tous les deux ans.

Bien que les salaires moyens au Canada aient augmenté de 6.1 pour cent par an, de 1964 à 1967 et de 12.2 pour cent de 1965 à 1966 (Bureau fédéral de la statistique), l'augmentation annuelle moyenne des salaires pour les employés de l'ADC, pendant la même période, a été inférieure à 4 pour cent.

L'Index des prix aux consommateurs indique une augmentation d'environ 3.6 pour cent par an. La modeste augmentation de salaires de 7 pour cent, prévue dans les estimations annuelles, correspond par conséquent à 3.6 pour cent pour compenser la hausse des prix et à 3.4 pour cent en reconnaissance de la durée et de la qualité des services rendus.

15. Dépenses occasionnées par les salaires: Les montants des estimations sont calculés sur la base de 12 pour cent des salaires actuels et couvrent les régimes de retraite, d'assurance-maladie, d'assurance-chômage et des accidents du travail.

16. Téléphone et télégraphe: Alors que l'on s'attend à ce que les frais de téléphone et télégraphe continuent à augmenter modérément, le total sera vraisemblablement d'environ \$3,000 pour les années considérées.

17. Traduction: L'augmentation importante des frais de traduction vient de ce que nous faisons appel à des traducteurs bénévoles non-professionnels alors que nous avons dû maintenant engager les services d'une agence de traduction professionnelle pour la plupart des traductions dont l'Association a besoin. Il faut s'attendre aussi à ce que le besoin de traduction augmente.

18. Dépréciation: Ce poste qui fait partie de la liste des dépenses exceptionnelles compte la dépréciation de l'immeuble du siège social, des meubles et installations fixes. C'est une écriture comptable qui ne

représente pas de sorties d'argent et que nous avons exclue par conséquent, de nos estimations.

COMPARAISON DES REVENUS ET DES DÉPENSES

Lorsque l'on compare le total des dépenses estimées pour 1969, 1971 et 1973 avec le revenu prévu pour ces mêmes années, il apparaît de façon évidente que le coût des services actuels à notre siège social augmentera plus rapidement que le revenu provenant du nombre croissant des dentistes autorisés à pratiquer, ceci en assumant évidemment que le subside par personne reste le même qu'aujourd'hui. En 1969, les coûts prévus dépasseront les revenus estimés d'environ \$21,000 en 1971, la différence sera d'environ \$39,200 et en 1973, de \$61,700.

Nous avons estimé les dépenses de l'Association en envisageant une augmentation annuelle de 7 pour cent bien que le nombre de dentistes et par conséquent le revenu de l'Association n'augmentent que de 2.5 pour cent par an. On pourrait se demander pourquoi les frais de l'Association augmentent tellement plus rapidement que le nombre de dentistes. C'est que les dépenses dépendent de deux facteurs indépendants: le personnel nécessaire pour servir un plus grand nombre de dentistes et les tendances inflationnaires qui affectent les salaires et les frais généraux hors de notre contrôle, taxes, chauffage, services publics, etc., tendances qui n'ont aucun rapport avec le nombre de dentistes.

ADMINISTRATION

Le personnel du siège social de l'ADC a augmenté au cours des 25 dernières années; nous avons débuté avec une secrétaire à temps partiel et nous employons maintenant 19 personnes à temps complet ainsi qu'un rédacteur français adjoint qui réside à Montréal et travaille à temps partiel. Nous avons augmenté notre personnel au fur et à mesure de la multiplication des responsabilités administratives et des demandes de la profession. Les changements socio-économiques, la

demande croissante pour toutes sortes de services de santé et l'attention portée à l'introduction des programmes de santé dentaire continueront à accroître les responsabilités et les activités de l'organisation. Chaque nouveau dentiste, dont le nom s'ajoute à la liste des membres de l'Association, et chaque nouveau service représente un travail supplémentaire pour un ou plusieurs des employés du siège social. L'inauguration, dernièrement, des programmes du test d'aptitude et du sociétariat des étudiants est un bon exemple des nouveaux services dont doit s'occuper le personnel du siège social. Nous manquons de personnel pour pouvoir appliquer efficacement les lignes de conduite adoptées par l'Association et pour répondre, comme il le faudrait, aux demandes de renseignements et d'aide que nous recevons de toutes parts.

Il faut distinguer deux aspects du développement de notre siège social dans les cinq ans à venir. L'un concerne l'essor normal qui provient du besoin de servir un plus grand nombre de dentistes, l'autre, l'expansion nécessaire pour entreprendre de nouvelles tâches, pour améliorer les services existants et pour assurer des responsabilités supplémentaires dans les intérêts de la profession et du public. Des meilleures relations publiques, plus de communications intraprofessionnelles et une liaison plus étroite avec le gouvernement sont des exemples de cette expansion.

A l'heure actuelle, la plupart des conseils et des comités de l'Association se composent de trois à sept membres. Toutes les provinces ne sont donc pas

représentées. Ceci augmente les difficultés de communication intraprofessionnelle et nuit à l'établissement d'une bonne coopération entre les associations provinciales et nationale. Si les conseils et les comités étaient composés d'un représentant de chacune des organisations membres, choisi de préférence par les organisations membres dans des comités provinciaux similaires, il y aurait plus de cohésion de pensée et d'action entre le groupe national et les groupes provinciaux ce qui augmenterait l'efficacité générale.

Le Conseil des Gouverneurs a déjà recommandé que l'on applique ce principe au Comité des services auxiliaires et au Comité des services dentaires (*Délibérations*: 56, 1967). Il est évident qu'un tel système serait plus coûteux que celui qui est en vigueur actuellement. On estime que les frais de remboursement pour les conseils et comités en seraient doublés.

Quatre employés subalternes supplémentaires sont nécessaires pour répondre à la demande accrue de services, sans envisager pour le moment l'extension de ces services ou l'addition de nouveaux programmes. L'expansion des services mentionnés dans le paragraphe précédent demande l'addition de trois cadres et de trois autres employés subalternes.

Le tableau 3 donne l'estimation des dépenses pour l'expansion des services existants et l'addition de nouveaux services. Nous avons utilisé les mêmes pourcentages d'augmentation pour les salaires et dépenses relatives aux salaires que pour les estimations du tableau 2. A nouveau, nous avons arrondi aux \$500 les plus proches.

TABLEAU 3 Estimation des dépenses pour l'expansion et l'addition de services en 1969, 1971 et 1973.

Suppléments	1969	1971	1973
	\$	\$	\$
1. Salaires de 4 employés subalternes	20,500	23,500	26,500
2. Dépenses relatives aux salaires pour (1)	2,500	3,000	3,000
3. Dépenses supplémentaires pour des comités et des conseils élargis	22,000	23,500	25,500
4. Salaires de 3 employés cadres	40,000	45,500	52,000
5. Dépenses relatives aux salaires pour (4)	5,000	5,500	6,000
6. 3 employés subalternes pour (4)—salaires	15,000	17,000	19,500
7. Dépenses relatives aux salaires pour (6)	2,000	2,000	2,500
8. Loyer—bureau d'Ottawa	2,000	2,500	3,000
9. Dépenses de bureau pour les nouveaux services y compris les meubles et l'aménagement	4,000	4,500	5,000
Total	113,000	127,000	143,000

TABLEAU 4 Estimation des dépenses par groupes, pour l'expansion et l'addition de services en 1969, 1971 et 1973.

Suppléments	1969	1971	1973
	\$	\$	\$
1. 4 employés subalternes (salaires et dépenses relatives aux salaires)	23,000	26,500	29,500
2. Conseils et comités élargis	22,000	23,500	25,500
3. 3 employés cadres et 3 employés subalternes plus dépenses de bureau	68,000	77,000	88,000
Total	113,000	127,000	143,000

Le tableau 4 est simplement une variation du tableau 3 qui divise les services en trois groupes et donne l'estimation des dépenses totales pour chaque groupe. Ces totaux servent par la suite, à calculer le subside nécessaire par dentiste, pour faire face aux différentes combinaisons de services (tableau 5).

CALCUL DU SUBSIDE PAR DENTISTE

La méthode de calcul peut être illustrée comme suit: En 1969, le total des estimations de dépenses pour l'Association, sur la base du personnel et des services

actuels (dans toute la mesure du possible), est de \$317,000 (tableau 2). Le revenu fixe pour 1969 (c'est-à-dire, le total de tous les revenus, sauf les subsides des organisations membres) se monte à \$29,500 (tableau 1). La différence (\$317,000-\$29,500) est de \$287,500, montant qui doit être couvert par les organisations membres. On estime qu'il y aura 6,800 dentistes autorisés à pratiquer en 1969. Par conséquent, le subside nécessaire par dentiste dans ces circonstances serait de $\$287,500 \div (6,800 \text{ moins } 2 \text{ pour cent})$, soit \$43.

Pour plus de clarté, prenons main-

TABLEAU 5 Récapitulation du total estimé et des dépenses au pro-rata des dentistes dans différentes circonstances, en 1969, 1971 et en 1973.

Année et circonstance	Dépenses totales	Revenus fixes	Dépenses qui doivent être couvertes par les organisations membres	Dépenses par personne
	\$	\$	\$	\$
1969: 6,800 dentistes moins 2% (6,664)				
Pas d'augmentation de personnel—services réduits	317,000	29,500	287,500	43
Augmentation du personnel subalterne—mêmes services	340,000	29,500	310,500	47
Augmentation du personnel subalterne—comités et conseils élargis	362,000	29,500	332,500	50
Augmentation du personnel (cadre et subalterne)—comités et conseils élargis	430,000	29,500	400,500	60
1971: 7,200 dentistes moins 2% (7,056)				
Pas d'augmentation de personnel—services réduits	350,500	29,300	321,200	46
Augmentation du personnel subalterne—mêmes services	377,000	29,300	347,700	49
Augmentation du personnel subalterne—comités et conseils élargis	400,500	29,300	371,200	53
Augmentation du personnel (cadre et subalterne)—comités et conseils élargis	477,500	29,300	448,200	63
1973: 7,600 dentistes moins 2% (7,448)				
Pas d'augmentation du personnel—services réduits	390,500	31,200	359,300	48
Augmentation du personnel subalterne—mêmes services	420,000	31,200	388,800	52
Augmentation du personnel subalterne—comités et conseils élargis	445,500	31,200	414,300	56
Augmentation du personnel (cadre et subalterne)—comités et conseils élargis	533,500	31,200	502,300	67

tenant l'exemple de 1971, avec l'addition de quatre employés subalternes nécessitée par le volume accru des services et l'élargissement des conseils et comités. Dans ce cas, le subside nécessaire par dentiste se calculera de la façon suivante:

Subside par dentiste	
= 1971 dépenses	\$350,500 (tab. 2)
+ frais: 4 employés	26,500 (tab. 4)
+ frais: comités et conseils	23,500 (tab. 4)
	—————
	400,500
Moins revenu fixe	29,300 (tab. 1)
	—————
	371,200

Divisé par le nombre de dentistes
 $371,200 \div (7,200 \text{ moins } 2 \text{ pour cent}) = \53

Le tableau 5 est une récapitulation des subsides par dentiste nécessaire pour couvrir les dépenses dans quatre situations différentes, chacune d'elles représentant un éventail de services différents pour les membres de l'ADC. Les calculs ont été faits de la même façon que dans les exemples ci-dessus. Il est évident que l'on peut envisager des groupements différents et l'addition d'autres services. Il faut décider avant tout des services que la profession désire recevoir avant de

pouvoir planifier, de façon logique, toute action future.

Cette récapitulation (tableau 5) montre clairement que, si les tendances économiques actuelles persistent, le coût des services que l'Association fournit présentement à ses membres et l'entretien de son siège social dépasseront son revenu, basé sur \$40 par dentiste autorisé à exercer. Pour que l'Association continue à être une organisation viable, l'appui financier qu'elle recevra devra être en fonction des différents services qu'on attendra d'elle.

Les subsides par dentiste indiqués au tableau 5 sont calculés d'après les totaux des dépenses nécessaires pour couvrir différentes situations. Le tableau n'indique pas les résultats, au cas où les subsides ne seraient pas augmentés. C'est pourquoi nous avons préparé le tableau 6. Non seulement il indique les déficits, si les subsides n'étaient pas augmentés, il indique aussi les différentes augmentations de subside par dentiste, pour les différentes combinaisons de services.

LE QUARTIER GÉNÉRAL DE L'ADC

Il ne serait pas nécessaire de modifier

TABLEAU 6 Récapitulation de l'estimation sur cinq ans. Total des revenus et des dépenses et coûts au pro-rata par dentiste.

	1963 réel	1965 réel	1967 réel	1969 estimé	1971 estimé	1973 estimé
	\$	\$	\$	\$	\$	\$
Revenu total sur la base de \$40 par dentiste (tableau 1)	241,996	242,876	287,741	296,000	311,300	328,800
Dépenses (tableau 2)	223,310	281,518	270,322	317,000	350,500	390,500
Excédent du revenu ou (déficit)	18,686	(38,642)	17,419	(21,000)	(39,200)	(61,700)
Nombre de dentistes moins 2%			6,401	6,664	7,056	7,448
Supplément à la contribution de \$40 par dentiste pour réaliser ce qui suit:						
1. Augmentation de la cotisation pour éliminer les déficits indiqués ci-dessus. Même personnel qu'en 1967, mais services réduits				3.00	6.00	8.00
2. Augmentation de la cotisation pour engager 4 employés supplémentaires afin de continuer à fournir les services actuels (tableau 4)				3.00	4.00	4.00
3. Augmentation de la cotisation pour élargir les conseils et les comités (tableau 4)				3.00	3.00	4.00
4. Augmentation de la cotisation pour engager 3 employés cadres et 3 employés subalternes afin d'étendre les services (tableau 4)				11.00	11.00	12.00

sérieusement l'édifice pour y abriter les quatre employés subalternes prévus. Par contre, il faudrait faire des transformations majeures pour accommoder le personnel nécessaire à des services plus étendus. En apportant de tels changements à l'immeuble du siège social, on pourrait avoir des locaux suffisants pour y loger tous les services, sauf le service des relations gouvernementales pour lequel on pourrait envisager des bureaux à Ottawa. En tant qu'immobilisation de capital, l'argent nécessaire à l'altération du bâtiment pourrait provenir de la réserve.

ALLOCATION QUOTIDIENNE

Une dépense de l'Association que l'on a pas considérée dans les estimations précédentes est l'allocation quotidienne pour le président. Le président, conformément à la tendance générale doit consacrer de plus en plus de temps aux activités de l'Association. Il doit s'adresser à plus de groupes et se rendre à plus de réunions que jamais auparavant. Au cours des dernières années, les présidents ont passé en moyenne de deux à trois mois en dehors de leur cabinet. Le remboursement sur une base quotidienne est l'une des méthodes qui permet à l'Association de partager avec le président, la perte de revenu qui en découle. Si le président a consacré 50 jours aux affaires de l'ADC et que l'allocation quotidienne est de \$100, la responsabilité annuelle de l'Association est d'environ \$5,000. Ajoutée aux prévisions précédentes et d'après le nombre actuel de dentistes au Canada, cette allocation représente une dépense par personne d'environ un dollar.

RÉCAPITULATION

1. On a estimé qu'il y aura 6,800 dentistes autorisés à pratiquer en 1969, 7,200 en 1971 et 7,600 en 1973.

2. Si les tendances à l'inflation persistent, les services fournis actuellement par l'Association ne pourront pas être continués sans dépenses supplémentaires.

3. L'augmentation des membres de l'ADC demande une augmentation des services que fournit l'Association.

4. On a suggéré l'addition de certains services. S'ils sont ajoutés, ils représenteront du travail supplémentaire pour le personnel et les installations existantes auront de la peine à les accommoder.

5. On a suggéré d'étendre les activités du conseil et des comités. Cette mesure augmentera les dépenses mais renforcera les liens entre les groupes dentaires provinciaux et le groupe national, augmentant ainsi l'efficacité générale.

6. On a prévu une réorganisation du siège social avec augmentation du personnel de direction et du personnel subalterne.

7. Le seul facteur des revenus qui puisse être modifié pour couvrir les frais croissants, est le subside des organisations membres.

8. On a établi une méthode pour estimer les revenus et les dépenses de l'ADC, qui permet de calculer le subside par personne, nécessaire pour réaliser des objectifs donnés.

9. Si l'on envisage l'augmentation du personnel du siège social au-delà des limites prévues, il sera nécessaire de songer à agrandir l'immeuble ou à déménager.

Reliure pour le Journal • L'Association dentaire canadienne a fait les ententes nécessaires pour permettre aux lecteurs de son Journal de faire relier les numéros de 1967, s'ils n'en ont pas eux-mêmes la possibilité. Les abonnés qui le désirent, peuvent envoyer leur commande accompagnée des 12 numéros du Journal, à la Carswell Printing Co., Bindery Division, 245 Bartley Drive, Toronto 16, Ont. Les 12 fascicules seront reliés en beau bougran bleu avec le titre, l'année et le numéro du volume repoussés or. Le prix est de \$5 plus l'affranchissement pour la réexpédition.

Executive Recommends \$25 CDA Grant Increase

The Executive Council has recommended that annual corporate member grants to the Canadian Dental Association be calculated on the basis of \$65 (up from the present \$40) per licensed dentist effective 1969. The Council has transmitted the resolution to the corporate members and the Board of Governors for action at the annual meeting.

An accompanying statement pointed to current inflationary economic trends and warned that "services now provided by the Association cannot be continued without increased expenditures." The report called for increased headquarters staff and facilities to serve the 7,200 dentists expected by 1971 and the 7,600 expected by 1973. By 1971, for example, the services now provided will cost \$49 per member. By 1973, the per capita cost of these services will rise to \$52.

The report also noted the Board-authorized expansion of the Dental Services and Auxiliary Services Committees and urged that representation on other committees and councils be similarly enlarged. This "will cost more to operate but should strengthen relations between provincial and national dental groups and improve the effectiveness of both."

The Council also cited repeated Board requests for intensified public information and public relations programs and for the initiation of a government relations department capable of monitoring legislative proposals that may affect dental practice. These services require "aid from specially trained personnel with adequate facilities. It is not a task for ama-

teurs or for those who can only devote their spare time," the Council declared.

The statement noted that council and committee expansion would raise the Association's per capita cost to \$53 by 1971 and to \$56 by 1973. Additional programs would increase these figures to \$67 by 1973. Pointing to corporate member grants as the only flexible item in Association revenue, the Council recommended the \$25 increase in the per capita grant to enable the Association to initiate some of these services.

Council on Education Seeks Qualifying Examinations for Foreign Dentists

The CDA Council on Education has recommended that the National Dental Examining Board of Canada "examine the role of the Board in examining graduates of foreign dental schools for licensure in Canada." This action followed a request from the Board of Governors which asked the Council to study the feasibility of establishing a facility for examining the graduates of unapproved foreign dental schools in order to ascertain the academic level to which an applicant to a Canadian dental school might aspire.

The College of Dental Surgeons of the Province of Quebec already offers a special written and practical examination whereby foreign university dental graduates may qualify for licensure in Quebec. Successful candidates are granted a tem-

porary licence pending fulfilment of citizenship requirements. Candidates who fail are required to earn a DDS from an approved Canadian dental school or school affiliated with the American Association of Dental Schools before being readmitted to a Quebec licensing examination.

The CDA Council on Education will also investigate "the dental schools' possible role and responsibility in ... the preparation of foreign dentists for licensure" in Canada.

Education Council Moves on Accreditation of Postgraduate Programs

The CDA Council on Education has agreed to the principle of developing an accreditation system for postgraduate programs which lead to a qualification in an area of specialization recognized by the Canadian Dental Association. The Council concluded that a mechanism for this purpose should be jointly developed by itself, the Association of Canadian Faculties of Dentistry and the Royal College of Dentists of Canada. As a preliminary step, the Council intends to develop a set of minimum requirements for the accreditation of postgraduate clinical programs.

National Convention

Hygienists Urged to Register Early

Dental hygienists have been reminded of the dates — June 27-29 — for the fifth annual convention of the Canadian Dental Hygienists Association in Vancouver. Highlights on June 26 include a Board of Directors meeting and an evening registration and hospitality hour in the President's suite at the Vancouver Hilton Hotel, beginning at 7.30 p.m.

Delegates are asked to return their convention registration form before the closing date for pre-registration, May 24. Further information may be obtained from Mrs. Terry S. Kline, convention chairman, 1136 West 40th Ave., Vancouver 13, BC.

Xi Psi Phi Meeting June 27

The British Columbia Alumni Chapter of Xi Psi Phi Fraternity has invited all members to a 'Friendship Hour' from 5.00 to 6.00 p.m., June 27, at the Vancouver Hilton Hotel. Members may use the Xi Psi Phi hospitality room at any time during the national convention.

Canada and the Provinces

McRuer Report Critical of Self-Governing Professions

The granting of self-governing rights is a delegation of legislative and judicial functions that can only be justified as a safeguard to protect the public interest. This power is not conferred to give or reinforce a professional or occupational status. So said former Ontario Chief Justice J. C. McRuer in his Royal Commission report of "Enquiry into Civil Rights" tabled in the Ontario Legislature March 5. The report looked at organizations serving physicians, dentists, nurses, architects, lawyers, engineers and other professions.

Self-governing bodies which can restrict membership and deny a person the right to work at his profession have almost judicial and legislative powers. "If they pass laws, then we recommend there should be some system of appeal to the Lieutenant Governor-in-Council. No single body should have the right to decide who is qualified to do a certain kind of work," the report states.

Mr. McRuer expressed concern over the extent of delegation of these powers and the adequacy of concomitant safeguards. "The relevant question is not, 'do the practitioners of this occupation desire the power of self-government but is self-government necessary for the protection of the public?'"

"Excessively high standards may produce specialists but leave a vacuum with respect to areas of a profession where the services of a specialist are required," he said. "It can be strongly argued ... that a power which so circumscribes the free-

dom of an individual to earn his livelihood by any lawful means, should not be exercised except under government control. These facts give foundation to the argument that the government of professional bodies is a matter for the State."

The report recommends that disciplinary bodies should have a government appointed lawyer as a member; also no members should sit in on an appeal from decisions in which they have participated. Each self-governing body should have a code of ethics laying down standards of conduct for the protection of the public. Disciplinary bodies should have the right to impose a full range of sanctions including the revocation of a licence to practise, but they should not be able to levy fines. There should also be a right of appeal against disciplinary decisions and decisions refusing admission.

Canadian Dental Schools

Saskatchewan U Starts Dental School This Fall

Dean K. J. Paynter has announced that the University of Saskatchewan's new College of Dentistry will admit its first students this fall. The first predental class will have up to 10 students. Eventually the school will enrol a total of 150 students.

Dr. Paynter said the dental study program will include a year of dental internship, believed to be the first anywhere. The six year course comprises one year of predental studies, two years of preclinical dentistry, two years of clinical dentistry, and the one year internship.

The school is located on the Saskatoon campus of the University of Saskatchewan. The first classes will be given in the Medical Building. The school will eventually occupy additions soon to be built to the Medical Building and the University Hospital.

Dr. Paynter said the new internship will be more than simply a period of experience in dental practice. "We hope that it will broaden the perspective of our students. They might, for example, spend part of it in public health clinics,

where they will have an opportunity to appreciate the scope of the dental problem and how oral health is related to general health. Internships spent partly in outlying areas could be of great benefit to both the students and the public."

Dr. Paynter said the curriculum is designed to tie in with the new medical curriculum that will start at the Saskatoon campus this fall. Dental and medical students will take a number of basic science courses together and will use common facilities for instruction and clinical studies. The university will train dentists, dental hygienists and graduate dental students.

Economics

Veterans Department Will Use Provincial Fee Schedules

D. M. Tanner, director of dental services of the Department of Veterans Affairs, has announced that his department will henceforth use provincial dental association fee schedules when paying private dentists for services rendered to veterans. Dr. Tanner said DVA will start to pay at 90 per cent of the rates shown in provincial schedules effective July 1.

Dissatisfaction over the fees paid by various federal government agencies had prompted the following resolution from the CDA Board of Governors last year: "Resolved that the Canadian Dental Association urge the federal government to pay for all dental services by relating fees to provincial fee schedules." CDA representatives subsequently met with officials in Ottawa and these consultations led to the action announced by DVA.

The Department of Veterans Affairs operates 18 dental clinics in Canada. Patients who live near these clinics are required to attend for dental treatment. Elsewhere patients may attend any dentist of their choice.

Dr. Tanner explained that not all veterans are eligible for dental treatment at departmental expense. Eligibility is restricted to those in receipt of a pension for dental disability incurred during service; those for whom the Department

considers dental care to be an essential part of the treatment of a pensionable disability; those who have suffered an arm or hand amputation or its equivalent; those who receive War Veterans Allowance; all veterans in departmental hospitals for the treatment of any pensionable disability; and veterans receiving domiciliary care. These beneficiaries have varying degrees of eligibility according to Veterans Treatment Regulations. They are entitled to varying levels of dental care according to their eligibility.

The eligibility of a veteran must be established before a private dentist commences treatment, Dr. Tanner said. "It is therefore essential that recommended treatment, other than emergency care, be assessed by a departmental dentist. This may sometimes result in amendment of the private dentist's recommendations," he explained. When treatment is completed, it is again necessary for a departmental dentist to review the fees and declare them in accord with policies of the Department so that Treasury officers may sanction the account.

CDA and Ottawa Officials Discuss Indian and Eskimo Fees

A federal spokesman told CDA officials March 18 that Ottawa's fee schedule for dental services rendered to Indians and Eskimos, though lower than the welfare fees paid in some provinces, is actually higher than that for welfare patients in other provinces. W. P. Mickelson, assistant principal treatment officer of the Department of National Health and Welfare, had been asked to encourage his department to use provincial dental fee schedules for the payment of these services.

Dr. Mickelson explained that his department's regional health directors are responsible for the health service budgets in their districts. They allocate the money according to the need and available funds. The federal official also stressed that Ottawa has no constitutional responsibility for health services to Indians and Eskimos.

He suggested that provincial dental associations (1) encourage their respective

provincial governments to improve and expand provincial welfare services so as to include Indians and Eskimos, and (2) work with DNH&W regional health directors to secure a fair share of available health service funds.

Fluoridation

Fluoridation Wins Top Support in British Columbia

British Columbia's Departments of Education and Health have jointly endorsed fluoridation of water to prevent tooth decay. "Water fluoridation is one of the most effective public health measures available today," says a policy statement sent March 4 to all boards of school trustees, school superintendents and schools in British Columbia. "It has proven to be safe, practical and to give life-long benefits. No better method to prevent tooth decay has yet been discovered and it can be applied to the total community."

The joint statement, believed a first in Canada, was sent by the Department of Education over the signature of F. P. Levirs, provincial superintendent of education. Mr. Levirs urged the staffs of local health departments and school boards to "provide education programs in this subject in the schools of British Columbia" Educational materials will be supplied to local health departments for use by teachers and students, said the departmental circular.

Edmonton Wins Fluoridation Battle

Edmonton has won its court battle over fluoridation of the water supply.

Magistrate J. C. Coughlan dismissed on March 5 an action by Morris Simons who alleged the city was administering mass medication to the water supply contrary to the federal Food and Drug Act.

The magistrate said that "fluoridation is a health matter, and public health is assigned to the provinces under the Public Health Act, by authority of the British North America Act. Therefore the city, in

putting fluorides in the water supply, is acting by express statute granted to it by the province."

After dismissing the charge, Magistrate Coughlan said: "I think I should point out for the benefit of people who are opposed to fluoridation that I have found more safety measures are employed in this city than in most to ensure that the fluoride level does not exceed one part per million of water."

Deaths

Casgrain, Charles Edmour. 69. Montréal. Université de Montréal, 1924. 6-3-68. Survécu par Marguerite (épouse); Mme Guy Beaudoin, Mme Marcel Nadeau et Mme André Nadeau (filles); et Dr Pierre (fils).

Lamoureux, Jacques. 51. Québec. Université de Montréal, 1945. 25-1-68.

Layton, Lloyd Brown. 57. Annapolis Royal, NS. Dalhousie University, 1936. 6-2-68. Survived by Florence (wife); Albert (son); and Mrs. B. Van Binsburgen and Mrs. L. Balcom (daughters).

McClintock, Edward Ruel. 86. Edmonton. Baltimore College of Dental Surgery, University of Maryland, 1908. 9-3-68. Survived by George (son); Cody, Carl, Kathleen and Kevin (grandchildren); and Mrs. H. R. Krueger, Mrs. C. G. Patterson and Mrs. C. R. Thomson (sisters).

Moore, Charles H. 80. Winnipeg. Royal College of Dental Surgeons of Ontario, 1909. 6-3-68. Survived by Arthur (brother) and Mrs. Ruby Phillips (sister).

Sarrazin, René. 63. Montréal. Université de Montréal, 1904. 21-3-68. Survécu par Claire (épouse); Francine et Hélène (filles); Leo-Paul (frère); et Mme Philippe Larose, Mme Rolland Ledoux, Mme Paul Theoret, Mme Alphonse Belanger et Mme Albert Noël (sœurs).

Yoerger, Wilfred George. 67. Prince Albert, Sask. Royal College of Dental Surgeons of Ontario, 1924. 20-3-68. Survived by Isobel (wife), Garnet (son) and four brothers.

Awards and Honours

A. C. Lewis, Toronto, former dean of the Ontario College of Education and for 18 years consultant in education to the Canadian Dental Association, was honoured by the CDA Council on Education at a dinner meeting on March 13. Dr. Lewis is an honorary member of the Canadian Dental Association. He has participated in periodic surveys of dental schools since the inception of the CDA accreditation program for Canadian dental schools.

J. B. Macdonald, former president of the University of British Columbia, was elected president of the International Association of Dental Research at its March 21-24 meeting in San Francisco.

Capt. **T. C. Turner**, a practising Toronto orthodontist and commanding officer of HMCS York, Toronto, has been appointed an honorary naval aide-de-camp to His Excellency, the Governor General of Canada.

Anti-Fluoridationist Loses Case and \$1,000 • A. Cudahy, Wisconsin, realtor recently lost a fluoridation case in court, and \$1,000 which he had offered to the local Junior Chamber of Commerce if they would disprove his charges about fluoridation. A county jury decided that realtor J. F. Quirk misrepresented facts in an anti-fluoridation brochure he had circulated. The verdict means that the Cudahy Junior Chamber of Commerce is entitled to the \$1,000 Quirk had promised if his handbill statements were misrepresentations.

Le Conseil exécutif recommande une augmentation de \$25 du subside

Le Conseil exécutif a recommandé qu'à partir de 1969, les subsides annuels que l'Association dentaire canadienne reçoit des organisations qui en font partie, soient calculés sur la base de \$65 (au lieu de \$40 à l'heure actuelle) par dentiste autorisé à pratiquer. Le Conseil a fait part de cette résolution aux organisations membres et au Conseil des Gouverneurs pour qu'ils puissent s'en occuper lors de leur réunion annuelle.

Une déclaration explicative a mentionné les tendances économiques actuelles à l'inflation et a averti que "l'Association ne pourrait pas continuer à fournir ses services actuels sans frais supplémentaires". Le rapport réclame une augmentation de personnel au siège social et les installations nécessaires pour servir des dentistes de plus en plus nombreux: ceux-ci devraient être au nombre de 7,200 en 1971 et 7,600 en 1973. D'ici 1971, par exemple, les services fournis actuellement coûteront \$49 par membre et en 1973, le coût de ces mêmes services se montera à \$52.

Le rapport a fait mention également de l'expansion des comités sur les services dentaires et les services auxiliaires, qui a été autorisée par le Conseil. Il a recommandé instamment que le nombre des membres des autres comités et conseils soit augmenté également. Cette mesure "fera monter nos frais mais elle devrait permettre de renforcer les liens unissant les groupes dentaires provinciaux et nationaux, ce qui augmenterait l'efficacité des uns et des autres".

Le Conseil exécutif a mentionné également les demandes réitérées du Conseil des Gouverneurs pour l'intensification des

programmes d'information du public et de relations extérieures, ainsi que pour la création d'un département des relations gouvernementales en mesure de contrôler les propositions législatives qui pourraient affecter la pratique dentaire. Ces services demandent "l'aide de personnes formées spécialement et disposant des facilités nécessaires. Ce n'est pas un travail d'amateur ni une tâche pour qui ne peut pas y consacrer tout son temps", a décrété le Conseil.

La déclaration indiquait que l'expansion des conseils et des comités augmenterait le coût par membre à \$53 d'ici 1971 et à \$56 d'ici 1973. Des programmes supplémentaires porteraient ces chiffres à \$67 d'ici 1973. Après avoir fait remarquer que les subsides des organisations membres de l'Association, étaient le seul élément extensible du revenu de l'Association, le Conseil exécutif a recommandé une augmentation de \$25 du subside par personne pour permettre à l'Association d'inaugurer quelques-uns de ces services.

Le Conseil d'enseignement demande des examens de compétence pour les dentistes étrangers

Le Conseil d'enseignement de l'ADC a recommandé que le Bureau national d'examens dentaires du Canada examine son propre rôle vis-à-vis du cas des diplômés de facultés dentaires étrangères qui désirent exercer au Canada. Cette action fait suite à une requête du Conseil des Gouverneurs qui a demandé au Conseil d'enseignement d'étudier l'établissement éventuel d'un système pour

examiner les diplômés de facultés dentaires non approuvés. Ceci permettrait d'établir le niveau académique auquel un candidat à une faculté dentaire canadienne pourrait aspirer.

Le Collège des chirurgiens-dentistes de la province de Québec offre déjà un examen spécial, écrit et pratique, pour permettre aux diplômés de facultés dentaires étrangères d'exercer dans la province de Québec. Les candidats qui le réussissent, reçoivent une licence temporaire jusqu'à ce qu'ils puissent satisfaire aux exigences concernant la citoyenneté. Les candidats qui n'ont pas réussi doivent obtenir un DDS, d'une faculté dentaire canadienne approuvée ou d'une faculté affiliée aux facultés dentaires de l'Association américaine, avant de pouvoir repasser l'examen du Québec.

Le Conseil d'enseignement de l'ADC étudiera également le rôle éventuel des facultés dentaires et leurs responsabilités dans la préparation des dentistes étrangers pour leur permettre d'exercer au Canada.

Le Conseil d'enseignement s'occupe de l'accréditation des programmes post-gradués

Le Conseil d'enseignement a approuvé le principe du développement d'un système d'accréditation pour des programmes post-gradués portant sur des spécialités reconnues par l'Association dentaire canadienne. Le conseil a conclu qu'un mécanisme devrait être mis au point conjointement par lui-même, l'Association des facultés dentaires canadiennes et le Collège royal des chirurgiens-dentistes du Canada. Comme mesure préliminaire, le conseil a décidé de préciser les exigences minimales pour l'accréditation des programmes cliniques post-gradués.

Congrès national

Les dentistes du Service de santé publique organisent une réunion de deux jours

La Société canadienne des dentistes du Service de santé publique a organisé une

réunion avec petit déjeuner, le jeudi 27 juin à 8 h. 30, au Devonshire Hotel, à Vancouver. Elle sera suivie de deux autres qui se tiendront le vendredi 28 juin à l'auditorium de la Public Library. La réunion scientifique commencera le matin à 11 h. et la réunion d'affaires aura lieu l'après-midi de 3 h. 30 à 4 h. 30. Pour de plus amples renseignements, veuillez vous adresser au Dr S. J. Gallagher, 465 West Broadway, Vancouver, 10, BC.

Chronique internationale

Changement des dates de la réunion de Varna

Les dates de la 56e réunion annuelle de la Fédération dentaire internationale, qui se tiendra à Varna, Bulgarie, ont été changées. L'inauguration officielle aura lieu à 8 h., le lundi 16 septembre et la cérémonie de clôture, le dimanche 22 septembre. Ces dates ont été substituées aux 17 et 24 septembre annoncées précédemment.

Journée d'étude de pédodontie à Strasbourg, France

La Société française de pédodontie organisera la "Deuxième journée d'étude française de pédodontie" le samedi 6 juillet à l'Institut dentaire de la Faculté de Médecine à Strasbourg sous la présidence de M. le Professeur J. Vedrine. Pour tout renseignement, écrire à Société française de pédodontie, 33 rue Poissonnière, Paris 2e, France.

Cours implantaire de Lariboisière

Le Cours implantaire de Lariboisière aura lieu à Paris, à l'Hôpital Lariboisière du 17 au 21 novembre 1968. Ce cours exposera toutes les méthodes et techniques valables, actuellement utilisées en implantologie. Il durera cinq jours, dans un service hospitalier de 9 h. du matin à 7 h. du soir. Les déjeuners sont pris en commun.

Toutes les méthodes implantaires, aussi bien juxta-osseuses qu'endo-osseuses y sont enseignées.

En raison des nombreuses demandes reçues et du fait du nombre limité de participants, nous vous demandons de nous adresser la somme de \$100 afin de vous réserver une place, le complément à verser le jour de l'ouverture du cours étant de \$120 pour les anciens, et \$140 pour les nouveaux.

Pour tous renseignements complémentaires, s'adresser: Dr R. Cherchève, 5 avenue de l'Opéra, Paris 1er, France.

Canada

Le rapport McRuer critique les professions autonomes

L'octroi des droits d'auto-gouvernement est une délégation des fonctions législatives et judiciaires qui ne peut se justifier que comme sauvegarde, pour la protection de l'intérêt public. Ce pouvoir n'est pas conféré pour donner ou renforcer un statut professionnel quelconque. C'est ce qu'a déclaré le juge J. C. McRuer, dans le rapport de la commission royale d'enquête sur les droits civils, déposé au parlement de l'Ontario, le 5 mars, après avoir étudié les corporations profession-

nelles des médecins, des dentistes, des infirmières, des architectes, des avocats, des ingénieurs et d'autres professions.

Les organismes autonomes qui peuvent limiter le sociétariat et refuser à une personne le droit de travailler dans sa profession ont presque des pouvoirs judiciaires et législatifs. "Si elles peuvent faire des lois, nous recommandons l'établissement d'un système d'appel au Gouverneur en Conseil. Aucun organisme ne devrait avoir le droit de décider qui a les compétences nécessaires pour un certain genre de travail."

M. McRuer s'enquiert de l'ampleur de cette délégation de pouvoir et de la valeur des sauvegardes qui l'accompagnent. "La question qui se pose n'est pas 'est-ce que les professionnels désirent l'autonomie mais est-ce que l'autonomie est nécessaire pour la protection du public' "?

"Il est possible que des normes très élevées produisent des spécialistes mais laissent un vide dans les sphères professionnelles qui requièrent les services d'un spécialiste", a-t-il déclaré. On peut déclarer catégoriquement qu'un pouvoir qui limite la liberté d'un individu de gagner sa vie par des moyens légaux ne peut être exercé que sous contrôle gouvernemental. Ces arguments appuient l'opinion suivant laquelle, la gestion des organismes professionnels est du ressort de l'état".

Le rapport recommande qu'un avocat

Le Dr J. D. McLean, (à gauche), doyen de la Faculté dentaire de l'Université Dalhousie et président du conseil d'administration du Fonds canadien pour l'enseignement dentaire accuse réception de deux chèques, d'un montant total de \$5,000, que lui remet M. G. H. Tobey, président de la L. D. Caulk Company of Canada Ltd., pendant que M. D. Murray McDonald, directeur exécutif du Fonds manifeste son approbation. Le montant remis par M. Tobey, au nom de la Caulk Canada and Dentsply Canada, Limited, complète la donation de \$15,000 faite par la Dentists' Supply Company, York, Pennsylvanie, l'un des principaux fabricants de dents artificielles et d'équipement dentaire, afin d'aider le Fonds canadien pour l'enseignement dentaire à financer son programme initial: l'installation de son siège social et de son personnel.



nommé par le gouvernement fasse partie des organismes disciplinaires et aussi que les membres qui ont participé à une décision n'aient pas le droit de siéger pour statuer sur l'appel de cette décision. Tous les organismes autonomes devraient avoir un code de déontologie régissant la conduite professionnelle, pour la protection du public. Les organismes disciplinaires devraient avoir le droit d'imposer une gamme complète de sanctions, y compris la révocation du droit d'exercer mais ils ne devraient pas pouvoir infliger d'amendes. Les décisions disciplinaires et les décisions refusant l'admission devraient pouvoir faire l'objet d'un appel.

Organismes dentaires

Le Dr Faith à la tête des orthodontistes du Québec

Le Dr R. W. Faith, de Montréal a été nommé président de l'Association des orthodontistes de la Province de Québec lors de la réunion annuelle de cette organisation, le 22 janvier. Les autres membres directeurs sont: le Dr J. J. Bisailon, ancien président; le Dr M. H. Wechsler, vice-président et le Dr J. R. Nadeau, secrétaire-trésorier, tous de Montréal.

Fluoration

Edmonton gagne la bataille de la fluoration

Edmonton a gagné la bataille juridique pour la fluoration de son eau.

Le 5 mars, le magistrat J. C. Coughlan a rejeté une allégation de Morris Simons suivant laquelle la ville frelaterait l'eau par l'addition de doses massives de médicament, contrairement à la loi fédérale régissant les aliments et les médicaments.

Le magistrat a déclaré que "la fluoration est une mesure sanitaire et que la santé publique est du ressort des provinces aux termes de la loi sur la santé publique, de l'autorité de l'Acte de l'Amérique du Nord britannique. Par conséquent, la ville, en ajoutant du fluorure à son eau, agit conformément au statut qui

lui a été conféré expressément par la province".

Après avoir rejeté l'allégation, le magistrat Coughlan a déclaré: "Je pense que je devrais faire remarquer à l'intention des gens qui s'opposent à la fluoration que les mesures de sécurité sont plus nombreuses dans cette ville que dans beaucoup d'autres pour assurer que le pourcentage de fluorure ne dépasse pas un millionième".

L'armée australienne aura de l'eau fluorée

D'après un article paru en décembre, dans l'*Australian Dental Journal*, le personnel militaire en Australie sera, dorénavant, approvisionné en eau fluorée. Ceci, combiné avec l'emploi de dentifrices fluorés et le plein usage des services d'hygiénistes dentaires devrait produire une réduction très nette de la carie dentaire chez les membres des forces armées.

Le Ministère de la défense nationale canadienne a pris une décision similaire, en décembre 1965. Il a ordonné que soit fluorée l'eau potable distribuée dans les établissements militaires, qui ne sont pas déjà alimentés d'eau d'une teneur optimum en fluore. D'ici l'été prochain, presque toutes les bases militaires du Canada disposeront d'eau fluorée. Les seules exceptions concernent les bases qui sont alimentées par des villes voisines, telles que Calgary et Victoria qui ont rejeté la fluoration par plébiscite.

Distinctions honorifiques

Au cours d'un dîner, le 13 mars, le Conseil d'enseignement de l'ADC a rendu hommage au Dr **A. C. Lewis** de Toronto, ancien doyen de l'Ontario College of Education et pendant 18 ans, conseiller sur les questions d'éducation, auprès de l'Association dentaire canadienne. Le Dr Lewis est membre honoraire de l'Association dentaire canadienne. Il a participé à des sondages périodiques dans les facultés dentaires depuis l'inauguration des programmes d'accréditation de l'ADC.

A provincial prerogative?

The Royal College of Dentists of Canada, established more than a year ago, has offered to help provincial licensing boards resolve the problems arising from the certification of specialists. A Royal College spokesman has acknowledged provincial jurisdiction in this field, adding that the College "has no intention, or even authority, to try to alter this situation."¹ Two provincial licensing boards have nevertheless requested permission to use the Royal College examination results as a basis for certifying specialists.

This poses a familiar situation in which provincial agencies abdicate their privileges and adopt a centralist stance. Why, then, should certain other provinces oppose centralization which works so successfully elsewhere? Why not let progress under national auspices prevail against the autonomy of provincial licensing boards who are charged with the responsibility of certifying specialists?

There is general agreement over the need for a national organization to promote progress in the specialties. But such an organization need not become an agent of the provincial licensing boards, acting on their behalf in the certification of specialists.

Admission to the dental profession has always been a provincial prerogative. Some provincial licensing boards have interpreted this right in relation to local circumstances and have refused to let their examinations be displaced by those of the National Dental Examining Board of Canada. Admission to the specialties is likewise a provincial prerogative, and policies governing the specialties should be similarly adapted to local needs which may vary from one province to another.

We must also remember that the Royal College of Dentists of Canada is unique. Established by an act of the Federal Parliament, the Royal College first selected each of its charter members and subsequently added to its membership by examination. The College has therefore the power to exclude those whom it does not wish to admit. Although its governing council is responsible to its own members, that council is not answerable to the dental profession as a whole. This makes the Royal College virtually a state within a state, and the specialties which it recognizes, professions within the dental profession—a situation which could become contentious.

Our present method of recognizing specialists has grave defects. A properly conducted examination would be infinitely better than vague bylaws that delegate authority to a committee which in turn issues specialist certificates to those who request them. It is imperative that the provinces recognize this gap and close it promptly. If they will not accept their responsibility, they must not complain when national organizations step into the breach under the pretext of helping the specialties on a national basis.

1. Royal College of Dentists offers cooperation to other dental organizations. *J. Canad. Dent. Ass.* 34:37, 1968.

The foregoing is a free translation of the editorial "Une prérogative provinciale?" published in the March 1968 issue of the *Journal*.

Checks and balances

On May 2, the president, the directors and the secretary-treasurer-registrar of the Alberta Dental Association reported to the membership at large on their stewardship of the profession's affairs over the past year. It is at this association annual meeting that the affairs of the profession in their many ramifications are laid bare to the examination of all those present. This is organizational democracy at work.

Commenting on democracy relative to voluntary associations, an editorial writer for an important organization newspaper recently stated: "Democracy is a flexible word with elastic properties. It means different things to different people in different times in different places. It is a very imperfect system. But it is an unbeatable system even though a political scientist would be hard-put to give good marks to the democratic methods which exist even to elect the directors of our association."

These comments might well be applicable to our own association. The machinery for the election of directors of the Alberta Dental Association is set out in the Dental Association Act. Few would claim this mechanism to be perfect. But let it be categorically stated that the Act provides a framework — a structure whereby, through the election of directors to the governing body of our profession, the voices of the individual member of the profession can be heard.

But what is the forte of the democratic process is, unfortunately, often its greatest weakness. What in fact happens is that which happens in every country. Indeed, it happens in almost every association, every social club, every voluntary body. It is the failure of the citizen, of the individual member, to turn out on election day and vote.

A new director was recently elected from the Southern District. To the winner the heartiest congratulations. But that is not the point.

Three excellent candidates offered themselves for election, certainly indicating a considerable interest in dental affairs in the district it would seem. Still, in the balloting, only 32 out of the 45 members in that district bothered to vote which is hardly a very commendable reflection on democracy.

Fortunately, however, a system of checks and balances is built into our regulatory Act. We are given another chance to express our views in the direction of policy in our professional affairs. The annual "open" meeting of the association provided this opportunity. To make this the effective democratic instrument it is intended to be, all that is required is that the dentists of Alberta attend!

M. J. Lipkind

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

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Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.

DVA and Provincial Fee Schedules

To the Editor:

The DVA announcement on page 284 of the May Journal is not according to fact. CDA officials did not meet with me or any representative of DVA, so that our change in policy did not result therefrom.

A few years ago, I informed the CDA that when provincial fee schedules were based on actuarial facts I would recommend their adoption by the Department. Only this year did I consider that most provinces fulfilled

the requirements. I therefore recommended the use of provincial fee schedules to the Treasury Board. It is regrettable that a few provinces have not yet based their schedules on relative value measurement and more regrettable that most provinces have not adopted the CDA list of services. Such action would simplify understanding of the schedules at the national level.

D. M. Tanner, DDS,
Director of Dental Services,
Department of Veterans Affairs,
Ottawa 4, Ont.

The Journal was partly in error. CDA Secretary W. G. McIntosh wrote to the Minister of Veterans Affairs on January 7 but CDA officials did not meet with representatives of the Department of National Health and Welfare. (Ed)

Oral Cancer Incidence

To the Editor:

For the figures in the article, "Oral Cancer Incidence in Central and Western Canada" (J. Canad. Dent. Ass. 34: 180, 1968), I would like to express appreciation to A. H. Sellers and E. N. MacKay, Medical Statistics Branch, Ontario Department of Health; L. Green, director, Hamilton Cancer Clinic; C. L. Ash, director, Princess Margaret Hospital, Toronto; T. H. C. Barclay, director of cancer services, Saskatchewan; A. R. Potvin, registrar, Quebec Tumour Registry; R. J. Walton, executive director, Manitoba Cancer Treatment and Research Foundation; and the Dominion Bureau of Statistics.

D. L. Anderson, DDS, MScD, FRCD(C),
Assistant professor,
Faculty of Dentistry, University of Toronto.

A. T. Storey,* DDS, MS, PhD, Toronto, Ont.

Sensory functions of the temporomandibular joint

Perception of mandibular position and perception of the size of objects held between the teeth is mediated by receptors in the temporomandibular joint. Severe malocclusion and reduced vertical dimension impair the joint's sensory function. Free endings are the most abundant of the four kinds of nerve endings observed in the temporomandibular joint capsule. They respond to several different kinds of stimuli and probably convey other information besides pain. In discharging their sensory functions both joints operate as a team rather than singly.

Les sensations de position du maxillaire et de la grosseur des objets tenus entre les dents est transmise à l'articulation temporo-mandibulaire par des nerfs récepteurs. Une mauvaise occlusion des mâchoires et la réduction de la dimension verticale de l'occlusion affectent les nerfs récepteurs et réduisent les fonctions sensorielles de l'articulation. Parmi les quatre sortes de terminaisons nerveuses que l'on observe dans la capsule articulaire, les terminaisons libres sont les plus fréquentes. Elles réagissent à différentes sortes d'excitations et transmettent non seulement la douleur mais probablement aussi d'autres stimuli. Dans cette fonction sensorielle, les deux articulations fonctionnent conjointement plutôt que de façon indépendante.

Dentists are inclined to consider pain as the only sensation arising from the temporomandibular joint (TMJ). A painful joint brings the patient to the dental office and brings this sensation to the clinician's attention. There is considerable evidence, however, that other conscious and unconscious sensations arise in the temporomandibular joint — sensations that may play

a significant role in the health of the stomatognathic system.

This article deals with the sensations relayed from the joint (psychophysics), the receptors in the joint (anatomy) and the probable functions of these receptors (physiology). Because it depends on perception of stimuli, the psychophysical evidence does not contribute any data on

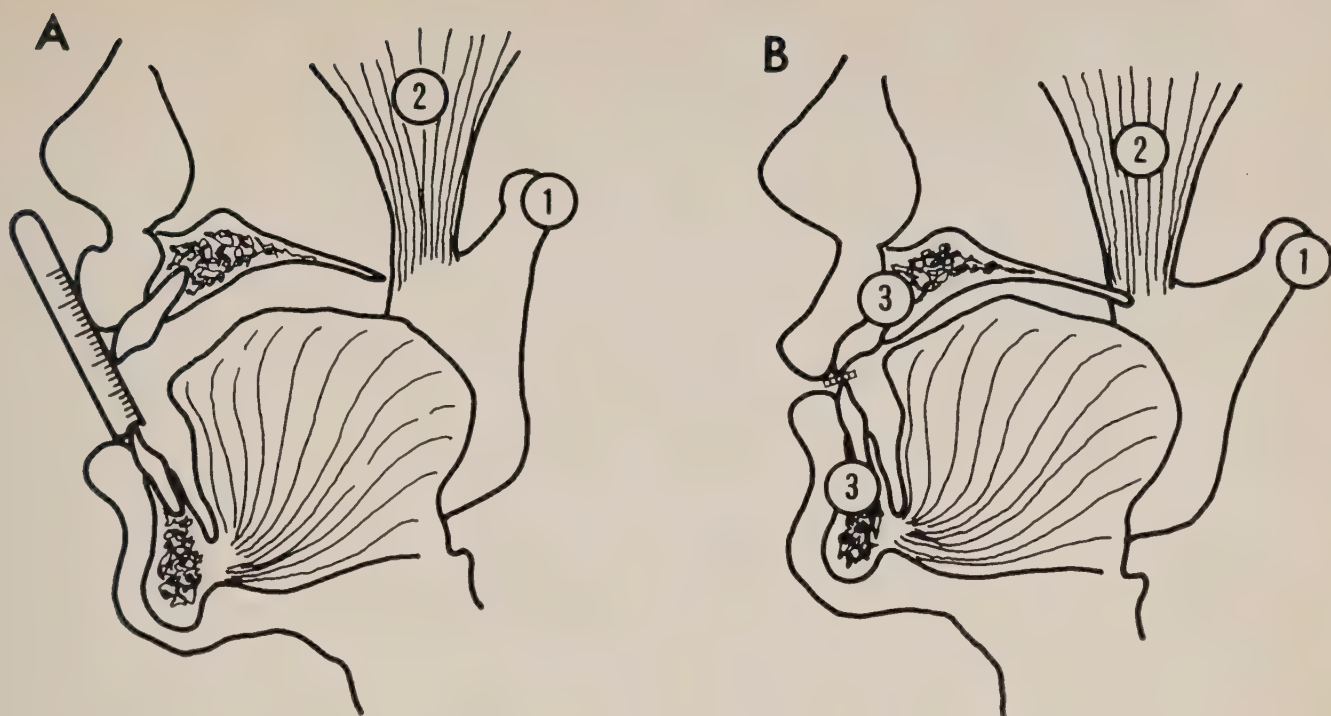


FIGURE 1 A, method of Thilander used to record mandibular positions. Receptors ① in the TMJ and ② the levator muscles may be implicated in perception of mandibular position. B, method of Siirila and Laine, Kawamura and Watanabe, and Manly et al used to determine the size of objects between the teeth. Foil, wire and lucite discs were the testing objects. Receptors in ① the TMJ, ② in the levator muscles and ③ in the periodontic membrane may be implicated in size discrimination.

joint sensations that initiate reflex mechanisms. The anatomical and physiological evidence provides further insight into TMJ sensory function, though only by inference.

PSYCHOPHYSICS

The temporomandibular joint relays conscious sensations of pain, mandibular position and interdental size. Pain may arise in the joint or may be referred from mandibular muscles or ligaments to the area of the joint. Compression or stretching of free endings may give rise to such pain. Chemical irritants released in inflammatory processes initiate or potentiate joint pain, but intracapsular swelling without inflammation causes little or no pain.¹

Mandibular Position. — There is considerable evidence that the human temporomandibular joint plays the key role in conscious identification of mandibular position.^{2,3} When the mandible occupies a nonoccluding position as in Figure 1A, one would certainly think of receptors in the joint [1], in the levator muscles of the

mandible [2], and possibly also in the skin and oral mucosa. If the teeth occlude or bite another object as in Figure 1B, the periodontic receptors [3] must be considered.

To identify the receptors that signal mandibular position, Thilander² asked 10 normal young adults to duplicate an arbitrary position between rest position and maximal opening. This position was recorded with a calibrated wooded spatula (Figure 1A). To standardize the measurements, one end of the spatula was recessed to fit over the incisal edge of the lower central incisor on which the spatula rested freely in the median plane. Thilander recorded the distance between the incisal edge of the lower incisor and the corresponding upper incisor. She asked the subjects to remember this position and duplicate it 10 times. Two or three test series were performed at different arbitrary positions. The difference between the highest and the lowest of the 10 values was used as a measure of the range of position (Table 1).^{2,3} Ranges were similar for all 10 subjects, the mean value being 3.2 mm. Most of the individual values did not deviate more than 1 mm. from the original position. When the sensory input

TABLE 1 Perception of mandibular position under various conditions.

Condition	Range of position (mm.)
Unanaesthetized TMJ's	3.2
Anaesthetized TMJ's	9.4; 9.3 (P < 0.01)
Unanaesthetized inferior alveolar nerve	5.2
Anaesthetized inferior alveolar nerve	4.2; 4.5
Untreated malocclusion	8.0
Treated malocclusion	3.6 (P < 0.001)
Untreated muscle dysfunction	3.4
Treated muscle dysfunction	3.6

from one or both joints was blocked with local anaesthetic the subjects found it more difficult to assume the original position. The mean range increased to 9.4 mm. for one joint and 9.3 mm. for both joints. This increase was statistically significant; the individual measurements no longer clustered around the original position. Anaesthetization of the second joint did not further impair the perception of mandibular position. This suggests that temporomandibular joints, like the vestibular organs, operate as a team; loss of function in one vestibular organ is as disruptive as loss of function in both.

Thilander² examined the role of receptors of the skin and mucous membranes in the perception of mandibular position. The range of position did not change appreciably when she anaesthetized one or both inferior alveolar nerves (Table 1). This does not rule out the possibility of tactile inputs from areas innervated by the maxillary division of the trigeminal nerve, particularly from the skin overlying the condyle heads.

Ransjö and Thilander³ also measured the significance of muscle receptors for the perception of mandibular position.

They determined the range of mandibular position in 25 cases of TMJ disorders due to severe malocclusion and reduced vertical dimension, and in nine cases of TMJ disorders due to masticatory muscle dysfunction. Ranges were computed before and after treatment. The pretreatment range was high in the malocclusion group and normal in the muscle dysfunction group (Table 1). The malocclusion group had a statistically significant reduction in the range of position after treatment. There was no change, however, in the muscle dysfunction group. The authors concluded that severe malocclusion provoked pathological changes in the joints which in turn impaired the joint receptors; muscle dysfunction, on the other hand, did not affect the sensory innervation. This suggests that muscle receptors do not participate in the perception of mandibular position — which accords with the generally accepted view of the minor role of muscle receptors in the perception of digit and limb position.^{4,5}

The perception of mandibular position is therefore primarily a function of the temporomandibular joints. Muscle and mucosal receptors normally play only a

TABLE 2 Perception of size of objects between the teeth under various conditions.

Condition	Threshold (mm.)	Discrimination (mm.)	
	Foil	Wire	Lucite discs
Natural dentition (unanaesthetized)	.008 - .030	.2 - .3	.18
Natural dentition (anaesthetized)	.090		
Dentures (no anaesthetic)		.4 - .5	.18
Dentures (topical anaesthetic)			.22

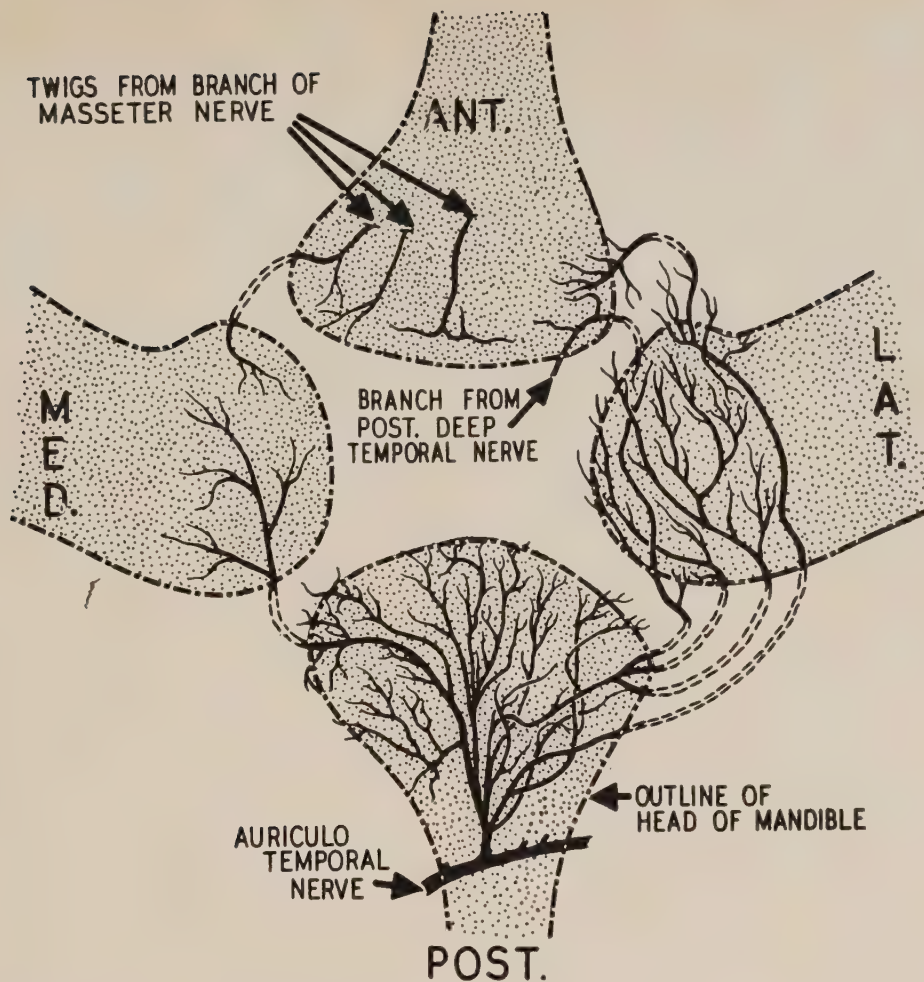


FIGURE 2 Innervation of the human TMJ capsule from the anterior, medial, posterior and lateral aspects. (Thilander, B. Trans. Roy. School Dent. Stockholm, No. 7, 1961)

minor role. Further insight into the sensory function of the temporomandibular joints could be gained from an examination of mandibular posture, perception of mandibular position and perception of interdental size in cases of unilateral and bilateral condylectomy.

Size Discrimination.—Most investigators believe that the size of an object held between the upper and lower teeth is determined by receptors in the periodontic membrane. Siirila and Laine⁶ attributed the perception of size to receptors around the teeth even though their data suggest that other receptors are involved. It is as difficult to conceive of skin receptors on the first and second digits conveying any information about the size of an object between them. Studies on perception of size fall into two categories: those determining the threshold thickness that can be perceived and those discriminating changes in thickness (Table 2).⁶⁻⁸ In their sample

of 36 young adults Siirila and Laine⁶ found that one-third detected foil 8-10 μ thick; all but three detected foil of 30 μ thickness. There was no significant difference in the perception threshold between incisors and molars. Three-quarters of the subjects could detect foil 90 μ thick even when both upper and lower antagonistic teeth were anaesthetized. Subjects tested by Kawamura and Watanabe⁷ were able to identify 0.2—0.3 mm. size differences in wires placed between unanaesthetized natural teeth, and 0.4 — 0.5 mm. size differences between maxillary and mandibular dentures. Discrimination was equally good between the natural incisors and natural molars. Manly, Pfaffmann, Lathrop and Keyser,⁸ using lucite discs of varying thickness, demonstrated equivalent size discrimination in the natural dentition and dentures. They also showed that topical anaesthetization of the alveolar mucosa does not appreciably alter this discrimination.

Therefore size discrimination is almost entirely a function of the temporomandibular joint receptors. Psychophysical studies such as those cited give no indication of the part which these receptors play in mandibular reflexes. One can only speculate on their role in determining posture and the direction and speed of mandibular movements.

ANATOMY

In the past much of the sensory capacity of an organ or tissue has been inferred from the richness of the innervation and the types of receptors. The capsule of the temporomandibular joint is innervated by a major branch from the auriculotemporal nerve and small slips from the masseteric and posterior deep temporal nerves.² The posterior and lateral parts of the capsule are most richly innervated (Figure 2). Twigs from the major branch of the auriculotemporal nerve continue medially and laterally to serve those portions of the capsule. The anterior part of the capsule

is sparsely innervated by small twigs from the auriculotemporal, posterior deep temporal and masseteric nerves. The medial part of the capsule is served by twigs from the masseteric and auriculotemporal nerves. No nerve endings are found in the articular disc of the adult joint.

Costen⁹ attributes TMJ pain to pressure on capsular or 'retrocondylar pad' receptors and the chorda tympani nerve resulting from posterior and medial condylar displacements. Ramfjord and Ash,¹⁰ on the other hand, regard anterior and medial displacements as the cause of TMJ pain. Pain from anterior and medial displacements could most easily be explained by traction on the nerve endings in the richly innervated posterior and the lateral parts of the capsule.

Four kinds of nerve endings have been found in the human TMJ capsule² (Figure 3). Free endings occur most abundantly. Organized endings like the Ruffini ending, Golgi tendon organ and the modified Vater-Pacini corpuscle are sparsely represented. The Ruffini endings occur in the postero-lateral and lateral part of the cap-

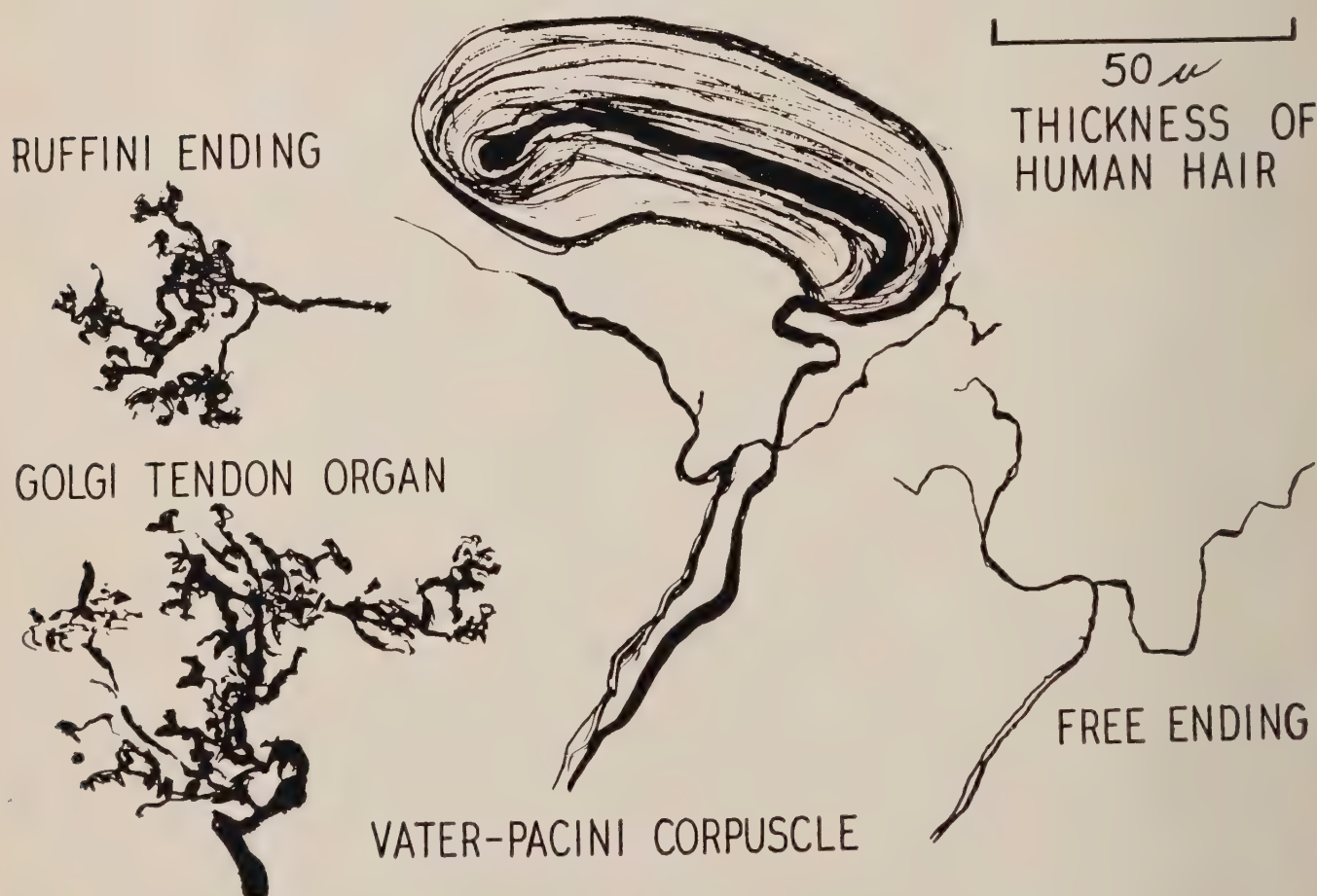


FIGURE 3 The four kinds of nerve endings found in the human TMJ capsule. (Thilander, B. Trans. Roy. School Dent. Stockholm. No. 7, 1961)

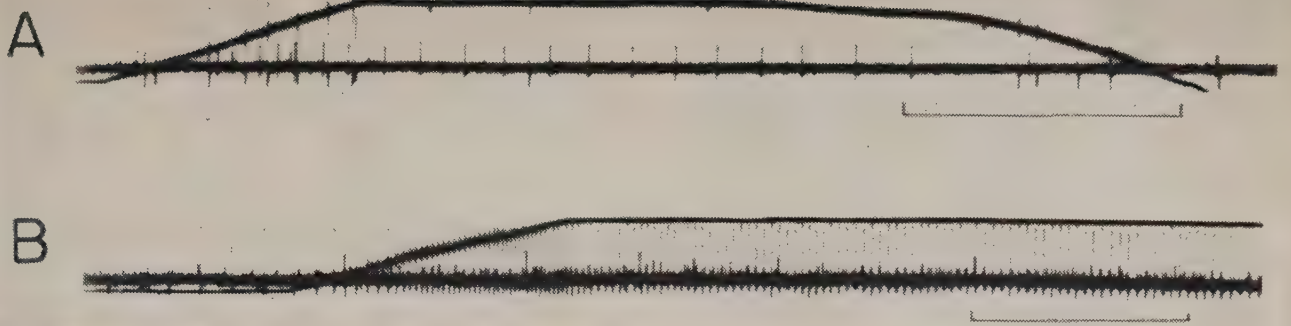


FIGURE 4 Action potentials generated by receptors in the knee joint of the cat. The curved line indicates position of the joint. Extension is in an upward direction. Calibration: 0.5 second. A, the larger action potentials illustrate the response of a receptor sensitive to changes in joint position. B, the action potentials of another receptor sensitive to static position of the joint. (Boyd, I.A. and Roberts, T.D.M. *J. Physiol.* 122:38, 1953)

sule. Golgi tendon organs occur in the superficial layer of the temporomandibular ligament. A few modified Vater-Pacini corpuscles occur in the lateral part of the capsule.

PHYSIOLOGY

Until recently receptors were thought to be sensitive to one kind of stimulation and to transmit one kind of information. For example, visual receptors are excited by light and their excitation is perceived as light. This is probably true for other specialized receptors. It is therefore reasonable to speak of the Ruffini ending as being sensitive to elongation, the Golgi tendon organ as sensitive to tension and the modified Vater-Pacini corpuscle as sensitive to pressure. On the other hand,

free endings may respond to several kinds of stimuli and may convey other information besides pain. The cornea for example, which is innervated only by free endings, may perceive sensations of touch, warmth, cold and pressure as well as pain.¹¹ Since some mammals do not have any of the organized TMJ receptors it seems quite possible that the free endings may serve other functions than that of mediating pain.¹²

The definition of sensory function on the basis of the stimulus energy (stretch, pressure, pain) to which the receptor is most responsive sheds little light on the function of a joint. It is more meaningful to speak of the receptors that signal sensations like position, rate of change of position or direction of movement. Such information, though not available from the temporomandibular joint, can be deduced

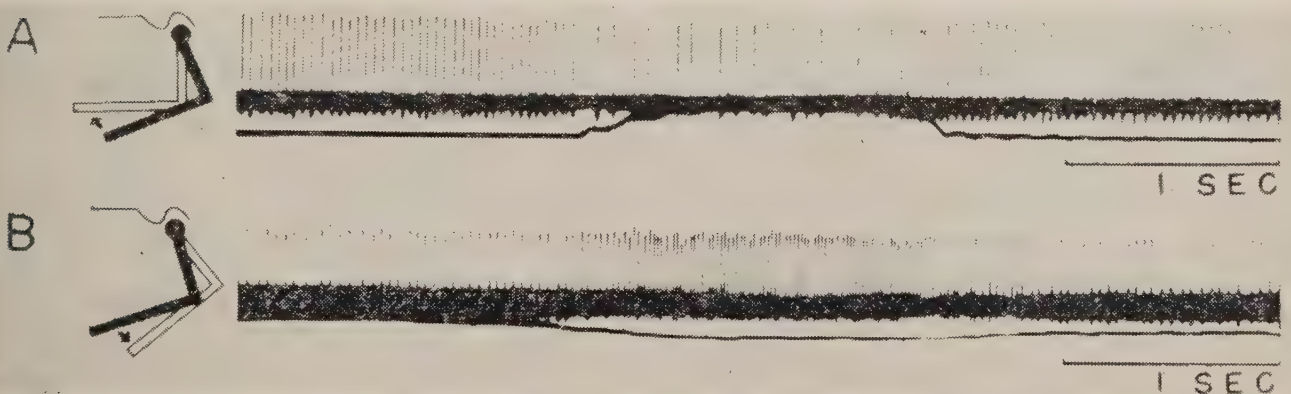


FIGURE 5 Action potentials recorded from a neuron in the motor nucleus of the trigeminal nerve during passive movement of one half of the mandible of a cat. The curved line indicates position of the mandible. Closure is in an upward direction. A, closure of the jaw suppresses neuronal activity. B, opening of the jaw enhances neuronal activity. (Kawamura, Y. and Watanabe, M. *Med. J. Osaka Un.* 10:291, 1960)

from other joints.¹³ Figure 4 depicts oscilloscope records of action potentials generated by receptors in the knee joint of a cat. Each vertical line represents one action potential. Information is carried along axons in the form of these conducted action potentials. The larger action potentials in record A illustrate the response of one kind of receptor to movement of the knee joint. The curved line indicates the magnitude of extension of the knee joint. This receptor fires only during movement of the joint, signalling information about a change in the joint position. This information may indicate the speed of change or, perhaps, the direction of change. Record B illustrates the response of another receptor which discharges continuously while the joint is in its usual position. The frequency of firing increases during extension of the joint and remains at a higher level in the new position. This receptor obviously transmits information about the static position of the joint. Since the innervation of the cat and monkey TMJ resembles that of the human joint,^{14,15} further important information may be expected from studies in these animals.

Comment up to this point has been limited to the structure and function of the receptor and the neuron to which it is subservient. Some of the discharges of these sensory neurons are relayed to conscious levels and perceived in terms of the sensations already described. Many, probably, initiate or modulate mandibular reflex function. Kawamura¹⁶ and Greenfield and Wyke¹⁷ have shown that some receptors indeed serve this function. In a study performed in the cat, electrodes placed adjacent to neurons in the motor nucleus of the trigeminal nerve monitored the activity of these neurons in response to changes in jaw position (Figure 5).¹⁶ The vertical lines represent action potentials in a motor neuron; the curved line indicates jaw closure in an upward direction and jaw opening in a downward direction. Jaw closure (record A) inhibited the motor neuron; jaw opening (record B) had the opposite effect. Since the jaw muscles were separated from their attachment to the mandible these are clearly reflex effects originating in the temporomandibular joint.¹⁷

SUMMARY

The temporomandibular joints function as a team rather than singly. They serve both conscious and reflex functions. We know a little about the former and practically nothing about the latter. In normal human subjects, receptors in the joint are primarily responsible for perception of mandibular position and size as determined between the teeth. Severe malocclusion and reduced vertical dimension may significantly disrupt TMJ sensory function. Although the human joint is mainly innervated by free endings, these may serve other functions than the mediation of pain.

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Effects of unrecognized abnormal swallowing

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Satisfactory occlusion depends in part on concomitant balance of the oral musculature since teeth respond to pressures exerted by adjacent soft tissues. The constant stress of abnormal swallowing disrupts this balance and frustrates dental treatment unless the deleterious habit is first corrected by myofunctional therapy.

Une occlusion satisfaisante dépend en partie de l'équilibre de la musculature buccale puisque les dents répondent aux pressions exercées sur elles par les tissus mous adjacents. La pression constante provoquée par une déglutition anormale détruit cet équilibre et nuit au traitement orthodontique. L'habitude néfaste ne soit corrigée, au préalable, grace à myothérapie.

Dental treatment may fail for many different reasons. One of these is unrecognized abnormal swallowing. The diagnostic criteria for this abnormality have been previously described.¹⁻⁹ This paper outlines some of the effects when deviate swallowing is unrecognized or inadequately treated.

Both mastication and swallowing exert considerable pressure on the teeth. This pressure must be evenly distributed to avoid undue stress in any single segment. The act of swallowing, which occurs twice a minute when awake and once a minute during sleep, is initiated by closure of the molars. Any imbalance in the resultant stress can have far-reaching effects.

Teeth move in response to pressure ex-

erted upon them by adjacent soft tissues. Maintenance of a satisfactory occlusal relationship depends on concomitant balance of the oral musculature. Unfortunately, the dental health of countless patients is jeopardized by a lack of such balance, as the following brief case histories illustrate.

Case 1.—This 55 year old man was referred by a prosthodontist. He had a pronounced anterior deviate swallow. The upper incisors protruded but the molars occluded satisfactorily (Figure 1). The masseters were weak; the orbicularis oris was likewise weak and underdeveloped. The patient had received orthodontic treatment on two previous occasions, but the occlusion had relapsed each time to its

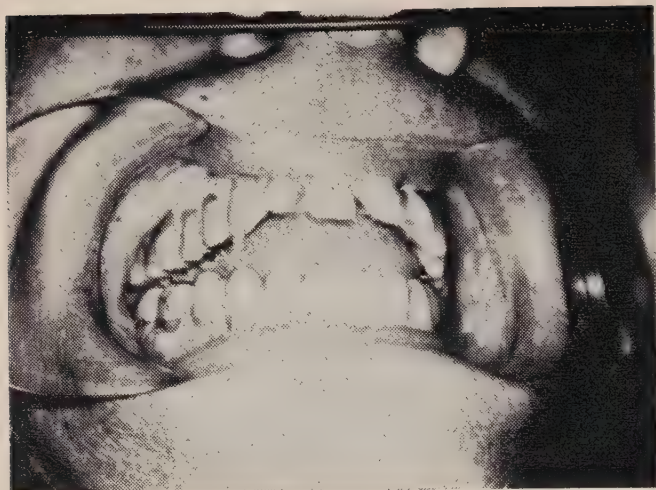


FIGURE 1

present state. The prosthodontist now sought the correction of the swallowing defect before making complete dentures for this patient.

Case 2.—This 41 year old lady was referred by her physician. She complained of chronic abdominal discomfort and aerophagia (spasmodic swallowing of air). Her dentist had made complete upper and lower dentures for her two years previously, but she did not wear the lower denture because the “tongue seemed to push it out.” She had a strong anterior deviate swallow, the tip of the tongue thrusting against the lower incisors (Figure 2). Her speech was slurred and the articulation of the sibilant sounds was defective. There was also a history of earlier malocclusion and deviate swallow which the dentures had evidently failed to cor-

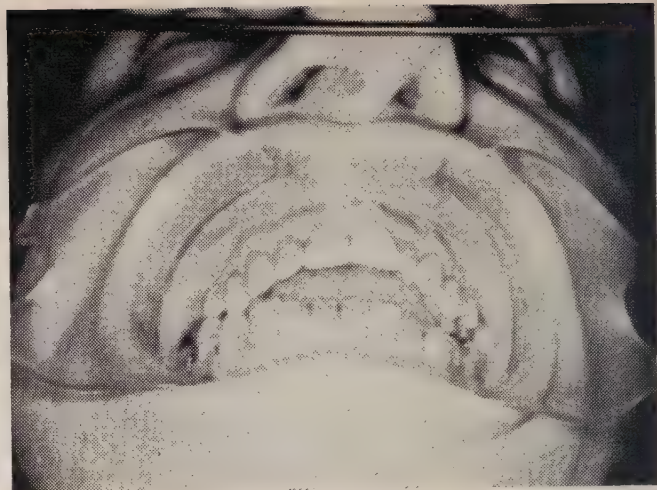


FIGURE 3

rect. Aerophagia is not uncommon in adults who exhibit a deviate swallow.

Case 3.—This 52 year old lady had an anterior open bite and gingivitis (Figure 3). An earlier tonsillectomy and adenoidectomy had failed to correct her mouth breathing. She spoke with a pronounced interdental lisp. The swallowing pattern was also abnormal. The masseters and the orbicularis oris were weak. The mentalis was slightly enlarged. Linking the chronic gingivitis to the malocclusion and the deviate swallow, the referring periodontist advocated corrective myofunctional therapy as a prerequisite to further periodontic treatment.

Case 4.—This 45 year old lady was referred by a prosthodontist because she could not maintain a satisfactory occlu-

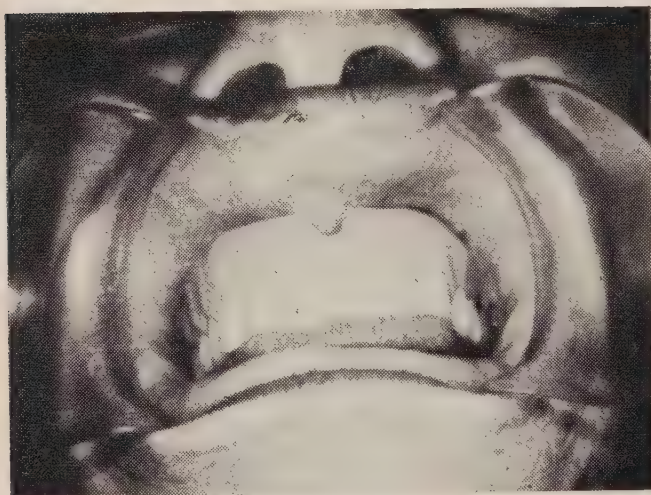


FIGURE 2

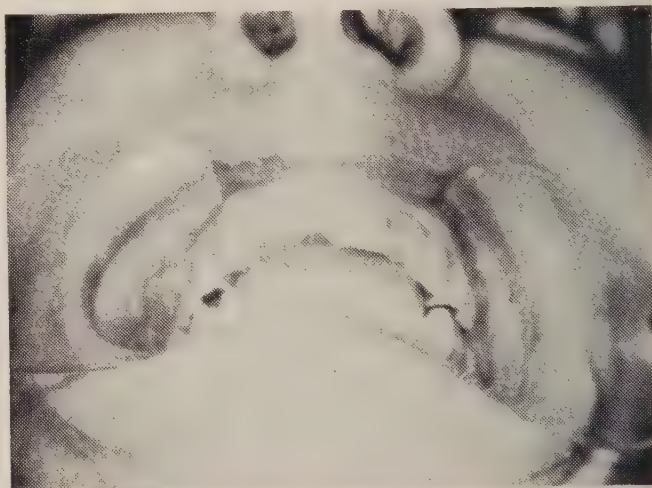


FIGURE 4



FIGURE 5

sion. She had a very strong anterior deviate swallow, the tongue protruding from molar to molar (Figure 4). The masseters and orbicularis oris were weak and underdeveloped but the mentalis was overdeveloped. Constant intra-oral pressure from the deviate swallow was responsible for chronic instability of the occlusal relationship.

Case 5.—This 52 year old lady was also referred by a prosthodontist for correction of a very pronounced anterior deviate swallow which interfered with the occlusion. The masseters and the orbicularis oris were weak and underdeveloped. The mentalis was grossly enlarged, a result of constant activity during abnormal swallowing (Figure 5). Both lateral ridges of the tongue were marked and sore from continuous pressure by the teeth. Myo-

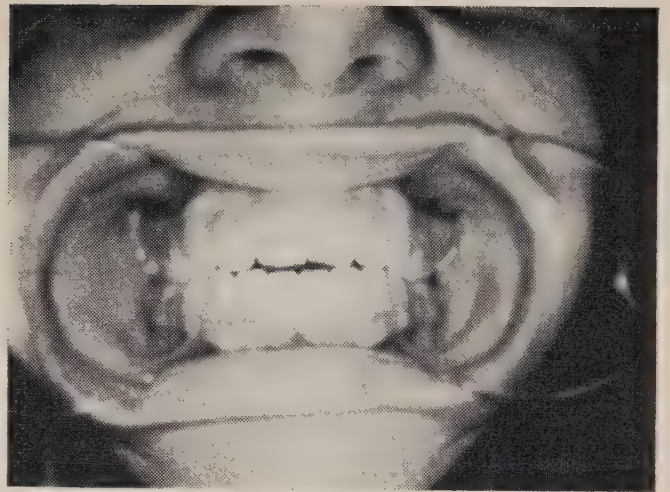


FIGURE 7

functional therapy was necessary before the prosthodontist could make a partial denture for this patient.

Case 6.—This 23 year old man with a deviate swallow had a closed bite. There was a 1½ mm. horizontal overlap between the lingual surfaces of the upper incisors and the labial surfaces of the lower incisors. The mandible opened instantly when he swallowed, allowing the tongue to protrude between the anterior teeth (Figure 6). The mentalis was enlarged but the masseters and the orbicularis oris were weak and underdeveloped. The patient had previously received eight years of orthodontic treatment. During this time an attempt was apparently made to open the bite and maintain the anterior teeth in a more favourable relationship by providing a larger tooth surface area for the deliv-

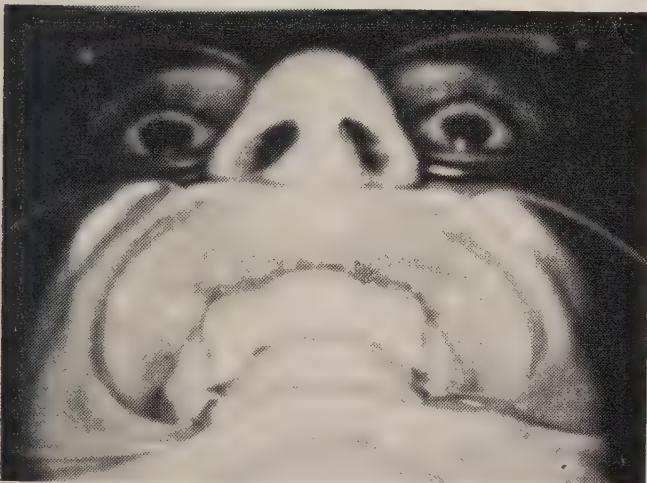


FIGURE 6

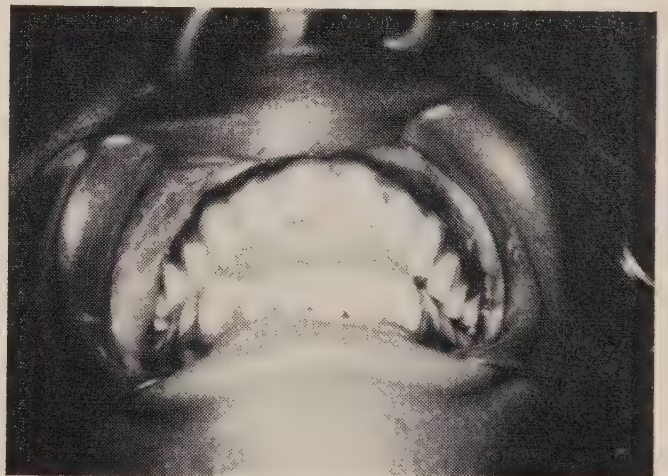


FIGURE 8

ery of tongue thrust. The tongue's 2,000 daily swallowing motions then produced an excessive open bite. Removal of the orthodontic appliances was followed by a total relapse of the occlusion. The orthodontist now requested myofunctional therapy preparatory to undertaking further treatment.

Case 7. — This 17 year old boy had an anterior open bite (Figure 7). The molars occluded satisfactorily. He also had a marked anterior deviate swallow, the tongue protruding between the anterior teeth. The masseters and orbicularis oris were weak and underdeveloped. He also had an interdental lisp. Despite seven years of orthodontic treatment, the retention of a satisfactory occlusion had proved impossible because of the exceptionally strong anterior tongue thrust. The tongue, in fact, had prevented full eruption of the incisors. Timely myofunctional therapy would have corrected this problem and greatly reduced the duration of orthodontic treatment.

Case 8. — This 22 year old lady was referred by a general practitioner. She had a deviate anterior swallow, slurred and indistinct speech, interdental lisp, and excessive horizontal overjet (Figure 8). The masseters and orbicularis oris were weak and underdeveloped. She had a lower partial denture which replaced teeth lost in an earlier automobile accident. Constant impingement of the tongue against the lower denture caused general discomfort, soreness of the tongue and the speech defects. The deviate swallow and

malocclusion predated the automobile accident, and the patient had previously been assured that her "teeth would come together as she matured." This failed to materialize. On the contrary, insertion of the lower partial denture merely served to accelerate the manifestations of the underlying abnormality.

CONCLUSION

These short case reports illustrate the significance of abnormal swallowing and oral muscle imbalance in various types of dental treatment. A dentist must be constantly alert to the possible existence of these abnormalities. He must formulate his treatment plan accordingly.

The patients described in this paper were successfully treated following myofunctional therapy. Nevertheless, they would have been spared a good deal of the cost of unnecessary treatment, not to mention discomfort, if their condition had been properly appraised.

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The history and development of general anaesthesia in dentistry

The author chronicles key events as he briefly retraces the 2,400 year old history of general anaesthesia. The recent growth of general anaesthesia in ambulatory office practice is attributed to the fact that hospitals alone cannot cope with the need for general anaesthesia for dental purposes. The profession should therefore develop additional accredited training programs in general anaesthesiology for dentists.

L'auteur retrace l'histoire de l'anesthésie générale qui a 2,400 ans d'existence, en notant les faits marquants. L'usage de plus en plus répandu de l'anesthésie générale dans les cabinets dentaires vient de ce que les hôpitaux ne peuvent pas satisfaire aux besoins d'anesthésie générale pour soins dentaires. La profession devra donc établir de nouveaux programmes pour les dentistes, portant sur l'anesthésie générale.

From time immemorial man has sought for the perfect means of freeing himself from the agony of painful injury and disease. This quest took many forms. At first his materia medica was confined to the herbs and flowers of the field where he discovered the narcotic properties of certain plants. Gradually he learned to profit from the benumbing or intoxicating effect of the juices of the poppy, mandragora, and Indian hemp by inhaling their vapours or consuming their extracts in the form of various vile mixtures. Throughout the ages alcohol has likewise served as a convenient and often employed agent to relieve the pain of surgery. About 450 B.C. Hippocrates laid claim to narcosis by having his patient inhale the

vapour of bane, while Scribonius in 47 A.D. recommended:¹

“ . . . When a tooth, which is loose or painful, is to be extracted, the nose of the patient should be rubbed with brown sugar, ivy and green oil; he is advised to hold his breath, a stone is then placed between his teeth, and he is made to close his mouth. The fluid which causes the pain is then seen to flow from the mouth in such quantity as frequently to fill three pots; after having cleansed the nose with pure oil, and rinsed the mouth with wine, the tooth is no longer painful and may easily be extracted.”

About 165 A.D. Galen, the Greek physician, used an application of pyrethrum root and strong vinegar as his anaesthetic agent for tooth extraction, protect-

ing the other teeth against the action of the vinegar by covering them with a layer of wax. After an hour the offending tooth became so loosened as to be easily removed.¹ The Egyptians, on the other hand, originated compression, and many subsequent surgeons have from time to time reintroduced the practice of extended mechanical compression to produce numbness in the part to be operated on.

The first truly modern experimental note was struck in 1799 when Sir Humphrey Davy published an account of his experiments with various vapours and gases. In this work occurs the following passage:²

"As nitrous oxide, in its extensive operation, appears capable of destroying physical pain, it may probably be used with advantage during surgical operations in which no great effusion of blood takes place."

Davy reached this conclusion when he relieved the pain of an erupting 'wisdom tooth' by the inhalation of nitrous oxide. But he was apparently not impressed with the idea of surgical anaesthesia.

H. M. Hickman tried to make surgical operations painless by using carbon dioxide. In 1824 he performed many surgical operations on animals rendered unconscious in this manner, but he failed to interest British and French physicians in the possibilities of surgical anaesthesia.^{1,3}

The so-called 'ether frolics' or 'laughing gas demonstrations' became a form of amusement among young people of the eighteenth and nineteenth centuries in America. At one of these parties in 1842, C. W. Long⁴ conceived the notion of letting a patient inhale sufficient ether so that he could operate without pain. But Long made no effort to introduce the idea into his practice; nor did he write, demonstrate, or lecture on the subject until after Wells and Morton made their historic demonstrations.

Horace Wells, a young Hartford, Connecticut, dentist, had been greatly troubled by the suffering which accompanied tooth extraction. On December 10, 1844, he chanced to hear a dissertation on chemical phenomena by G. Q. Colton, a travelling chemist. This worthy manufactured nitrous oxide. To amuse the

crowd, he invited spectators to come forward and inhale the 'laughing gas fumes.' Wells observed that the volunteers exhibited no subsequent sign of pain as they stumbled and scraped their shins on heavy benches. This may have crystallized the idea of inhalation anaesthesia in his mind. Wells, it is thought, was unacquainted with the suggestion made by Sir Humphrey Davy some 45 years earlier. And so on December 11, 1844, he had one of his own teeth painlessly extracted while under the influence of nitrous oxide. Encouraged by this experience, Wells continued to experiment with the gas. He introduced it into his own practice and taught other dentists to use it.^{5,6}

W. T. G. Morton learned about inhalation anaesthesia from Wells. After some experimental work he began to use ether in place of nitrous oxide. Morton demonstrated the practicality of ether anaesthesia in 1846 to the Harvard University medical class. The anaesthetic was administered by means of a modified hollow glass ball. A sponge inside the ball was saturated with ether, the nostrils were closed with the hand, and the mouthpiece placed between the patient's lips. The inhaled air, passing over the ether-saturated sponge, thus became charged with anaesthetic vapour.⁶

Major controversy then arose as Wells, Morton and Long each contended for the title of discoverer of anaesthesia. This was not resolved until 1870 when the American Medical Association decided "that the honour of the discovery of practical anaesthesia is due to the late Dr. Horace Wells of Connecticut."^{5,6}

The discovery and first use of anaesthesia was followed by the exploration of new agents, the mastering of techniques for their administration, and the improvement of dependable anaesthetic equipment.^{1,5,6}

John Snow of England, on January 28, 1847, is credited with the first administration of anaesthesia for major surgery,⁷ while J. Y. Simpson, a Scottish compatriot, experimented with chloroform in obstetrical practice. This precipitated a violent controversy over the propriety of abolishing the pain of childbirth. Simpson's opponents claimed that anaesthesia during childbirth lessened maternal love because

"the very suffering which woman undergoes in labour is one of the strongest elements in the love she bears for her offspring."^{6,8} Reaction was even more pronounced in the United States where anaesthesia was bitterly opposed and ridiculed by many American physicians and dentists.⁹ Meanwhile, chemists on both sides of the Atlantic tried to improve anaesthetic agents, while some dentists and physicians continued to experiment with new means of administration.^{1,3} In 1868 W. W. Green¹⁰ of the Maine Medical School first injected morphine subcutaneously while the patient was under the influence of ether. And in 1869 Thomas W. Evans,² an outstanding American-trained dentist of Paris, began to introduce nitrous oxide anaesthesia to Europe.

New advances in the perfection of the anaesthetic agents were soon followed by improvements in the instruments for their administration.² In England liquid nitrous oxide became available to the medical and dental professions in 1872. Prior to this, dentists had to make their own nitrous oxide.¹ In 1894 H. J. Carlson, a Gothenburg dentist, and in 1896 Thiesing, a Hildesheim dentist, experimented with ethyl chloride which subsequently came into general use in German hospitals.¹¹

The earliest devices for delivering both nitrous oxide and oxygen appeared in 1898. Sir Frederick W. Hewitt designed the first machine for the combined gases, and shortly afterwards the S. S. White Company of America patented its own model.¹¹ C. K. Teter, a Cleveland dentist, brought out a second machine in the United States for the administration of nitrous oxide and oxygen in 1902.^{1,3} J. A. Heidbrink,¹² a dentist in Minneapolis, experimented with the Teter machine and finally built an entirely new machine for the administration of nitrous oxide and oxygen in 1908. To E. I. McKesson, a Toledo physician, goes the credit for devising the first intermittent flow motion nitrous oxide-oxygen apparatus. His machine, perfected in 1910, had an accurate percentage control for the two gases. McKesson¹³ subsequently became an undisputed international authority on nitrous oxide-oxygen anaesthesia. Teter, Heidbrink and McKesson were largely instrumental in bringing about the use of

nitrous oxide and oxygen anaesthesia for major surgical operations on this continent.

No history of anaesthesia would be complete without mention of the more recent agents — ethylene, vinyl ether, cyclopropane, halothane and the intravenous barbiturates. Ethylene, called olefiant gas by early investigators, is believed to have been discovered by the Dutch-born physician Ingenhousz in 1799.¹ Early in the twentieth century commercial carnation growers reported extensive losses when their plants were placed in Chicago greenhouses. This triggered an investigation by Crocker and Knight¹⁴ who eventually branded ethylene, a constituent of illuminating gas, as the responsible agent. These findings stimulated Chicago researchers A. B. Luckhardt and R. C. Thompson in 1918 to determine whether the toxicity of illuminating gas was attributable to its ethylene content rather than its carbon monoxide content.¹⁵⁻¹⁷ Their results, which revealed the anaesthetic properties of ethylene, led to the first dental extractions under ethylene and oxygen anaesthesia. These were performed by Charles Dodd at the Salvation Army Clinic in Chicago with Luckhardt supervising the anaesthetic administration.¹⁴

D. E. Jackson¹⁸ in 1915 developed the closed respiratory system which provided for the absorption of carbon dioxide and the addition of oxygen, with the unchanged nitrous oxide being rebreathed repeatedly. In 1923 R. M. Waters¹⁹ adapted this system to human surgical anaesthesia. The absorption technique is now standard practice with all the gaseous anaesthetics.

Vinyl ether was originally proposed as an anaesthetic by C. D. Leake²⁰ of the University of California Medical School in 1930. The first pure vinyl ether was synthesized in 1931.²¹ On November 6, 1933, T. J. Cook, an oral surgeon, performed the first dental operation under vinyl ether at the University of Pennsylvania Hospital.¹

Though August von Freund prepared cyclopropane as early as 1882, more than 50 years elapsed before R. M. Waters and his staff at the University of Wisconsin began to use it for surgical operations

in human subjects in 1933.²²

In 1875 chloral hydrate was used to produce anaesthesia intravenously. This gave rise to further experiments with many different drugs as investigators searched for an agent capable of producing satisfactory anaesthesia by this route. By 1929 sodium amytal was being used clinically as an intravenous anaesthetic.²³ Intravenous drug administration continued intermittently for a few years, though not so much for surgical anaesthesia as for the treatment of afflictions necessitating deep hypnosis and sedation, particularly in patients incapable of accepting inhalant anaesthetics.

In 1932 H. Weese²⁴ described a new barbituric acid derivative, Evipal. Quickly detoxicated by the liver, its duration of action was short. A sodium salt, Evipal solution, proved useful in dental operations requiring anaesthesia for only 15 or 20 minutes.

Thiopental sodium (Pentothal), another barbituric acid derivative, was used experimentally by J. S. Lundy²⁵ at the Mayo Clinic in 1934. Its general introduction in the United States followed in 1935.

Nitrous oxide was early recognized as a weak anaesthetic agent. Consequently, various drugs were tried in combination with nitrous oxide to potentiate its effect. In 1908 G. W. Crile²⁶ proposed the combination of local anaesthesia with light general anaesthesia. Two notable contributions were made by Lundy²⁷ who in 1926 described the concept of 'balanced anaesthesia,' a combination of effective pre-operative sedation and analgesia accomplished by local infiltration and general anaesthesia. In 1935 Lundy²⁵ first described the supplementation of nitrous oxide with intravenously administered sodium thiopental.

The early 1950's saw the introduction of fluoroxene by J. C. Krantz et al.²⁸ This was the first of three halogenated volatile anaesthetics which were subsequently used as supplements to nitrous oxide anaesthesia. The anaesthetic action of halothane was described by J. Raventós²⁹ in 1956, and four years later Artusio and Von Posnak made the first clinical use of methoxyflurane.³ Muscle relaxants, arising from the clinical use of curare by H. R. Griffith³⁰ in 1942, greatly broadened the

scope of nitrous oxide anaesthesia. Since the introduction of succinylcholine in 1949 by Phillips³¹ and Bovet the nitrous oxide-relaxant technique has been applied in all types of surgical procedures.

Latest refinements in nitrous oxide administration are highlighted by the classic work of Faulconer, Pender and Bickford³² reported in 1949. They showed by electroencephalography that the gas is capable of producing anaesthesia without concomitant hypoxaemia. Thus nitrous oxide, which during the past 120 years was variously labelled an asphyxiant, a useless agent and an anaesthetic panacea, has finally achieved recognition as a basic inhalation ingredient in anaesthesia for general and oral surgery.³

The dentist now disposes over a variety of anaesthetic agents, each with its advantages and disadvantages. Not all the available agents are adaptable for ambulatory use, nor are they all suited for dental procedures in the hospital. There are presently eight volatile agents that may be used in dental and oral surgery: diethyl ether, divinyl ether, trichloroethylene, ethyl chloride, ethyl-vinyl ether, halothane, fluoroxene and methoxyflurane.

The introduction of barbital in 1903 ushered the beginning of modern intravenous anaesthesia.³³ Many years were to pass, however, before an acceptable intravenous agent was found. The early long-acting compounds required excessive doses and had prolonged residual effects. As new barbiturates were introduced, each was evaluated. The acceptance of intravenous anaesthesia was established with the introduction of newer short-acting barbiturates — pentobarbital (Nembutal) in 1930, thiopental in 1933, and methohexital (Brevital) in 1955.³³

ANAESTHESIA IN DENTISTRY TODAY

Intravenous anaesthesia is now used extensively and has benefited oral surgery more than any other agent since the advent of nitrous oxide. Adrian Hubbell, who studied with John Lundy at the Mayo Clinic (1937-40), and Wyckoff and Bulard pioneered the use of intravenous anaesthesia for ambulatory oral surgery

patients. Hubbell was the first American to adopt routine intravenous anaesthesia without premedication for oral operations in ambulatory patients.^{34,35}

N. B. Jorgensen^{34,36} in 1946 refined intravenous administration of barbiturates and analgesics so as to predetermine the desired stage of light sedation for 'problem' dental patients.

In 1947 the principle of 'balanced anaesthesia' was presented to the American Society of Oral Surgeons. This method employs thiopental sodium as the basic anaesthetic agent supplemented by nitrous oxide-oxygen for adequate oxygenation and faster recovery.³⁷ Concurrently, two American oral surgeons, H. M. Selden and M. H. Feldman, began to promote general anaesthesia for ambulatory dental patients.

Three important considerations affect the management of the anaesthesia for oral surgery: (1) most dental operations are relatively short and require only light anaesthesia; (2) anoxia from mechanical or reflex obstruction of the airway is a constant hazard; (3) patients must be able to walk out of the office within a reasonable length of time.³⁸ Intravenous anaesthetics resolve many of these problems by virtue of their direct introduction into the blood stream and their rapid action on the central nervous system. This method bypasses the slower respiratory route where large partial pressures must be built up, breath by breath, by the substitution of gas for nitrogen and with the oxygen unchanged or preferably increased as anaesthesia is obtained.^{37,39}

Intravenous agents are used with air, oxygen, inhalant anaesthetics, pre-anaesthetic drugs or muscle relaxants. They can serve for induction only or as a supplement during maintenance of anaesthesia.^{40,41}

It is popular to speak of balanced anaesthesia, as if the mere introduction of several drugs into the body makes for better or safer anaesthesia. But intravenous drugs, as H. W. Krogh points out, should serve as the primary agent and no other drugs should be used unless they are specifically required.³⁸

Methohexital sodium is now preferred for the ambulatory patient.³⁴ Its quick action permits accurate control of the

depth of anaesthesia by the administration of small intermittent doses. This in turn facilitates rapid recovery. Dental operations lasting two or three hours are now feasible for the ambulatory patient when methohexital is the principal anaesthetic and long-lasting premedication is avoided. Both methohexital and thiopental offer a rapid, tranquil induction. They also possess an amnesic effect which permits the execution of many painless procedures while the patient is in control of protective reflexes. Methohexital has little cumulative effect; the recovery time after brief or long operations is almost identical.^{33,34}

The rapid action of methohexital and succinylcholine facilitates endotracheal anaesthesia for ambulatory patients.³⁴ Although most oral surgeons prefer a hospital environment for this procedure, some qualified dental anaesthetists regularly perform endotracheal anaesthetic administration in the dental office.

Norman Trieger⁴² considers halothane, whether used alone or with an intravenous barbiturate, excellent for oral surgery in the ambulatory patient. With halothane there is good relaxation and freedom from excessive salivation and secretion. There is, moreover, no need for large doses of barbiturate. Recovery is rapid. But since halothane is so potent, exact moment-to-moment observation is necessary during its administration.

Two other commonly used agents in oral surgery are trichloroethylene and vinyl ether. Used with nitrous oxide, trichloroethylene provides added analgesic action and safety.³³ Vinyl ether is rapid in action and possesses excellent analgesic properties. Administration by the open drop method is commonly used for light analgesia and short operations in children. Supplementary vinyl ether can also be used in nitrous oxide-oxygen gas apparatus employed for light analgesia.³³

GENERAL ANAESTHESIA PROGRAMS FOR DENTISTS

The need for general anaesthesia in ambulatory office practice continues unabated. Patients with cerebral palsy, spastic individuals and others who are emo-

tionally unprepared for dental care are best treated under general anaesthesia. Similarly, certain forms of acute infection, swelling and trismus are better treated under general anaesthesia.⁴³ Hospitals alone cannot meet the need for general anaesthesia for dental operations. General anaesthesia for dental purposes therefore continues in part as an office procedure to be administered or supervised by dentists.⁴³

L. M. Monheim⁴⁴ of Pittsburgh, likely the first North American dentist to take a full anaesthesia residency from 1934 to 1937, inaugurated the first one-year anaesthesia program for dentists at the University of Pittsburgh and Presbyterian Hospital in 1946. Other Canadian and American institutions have since established similar programs to train dentists in the administration of general anaesthesia.

R. Q. Royer and J. S. Lundy have urged that dental interns and residents enrolled in these courses pursue 6-12 months full-time clinical anaesthesia training, with concomitant basic science instruction and supervised administration of general anaesthesia to a minimum of 1,000 patients.^{45,46}

AMERICAN DENTAL SOCIETY OF ANESTHESIOLOGY

This historical sketch would be incomplete without some mention of the American Dental Society of Anesthesiology. ADSA was founded in 1953 by a group of dentists with a common interest in the advancement of anaesthesiology in dentistry. Its basic aim, then as now, is to elevate the standard of anaesthesiology in dental practice. The association is a source of information and a common meeting ground for specialists and general practitioners. ADSA has also been instrumental in having the Council on Scientific Session of the American Dental Association establish a separate section on anaesthesiology. This section develops programs in anaesthesiology presented at the annual sessions of the ADA. ADSA publishes *Anesthesia Progress*, the only monthly dental publication exclusively devoted to anaesthesiology.

CONCLUSION

The striking advances that characterize the application of general anaesthesia to dentistry have generated a need for dentists who can utilize this medium capably. As a consequence the profession should try to increase the number of accredited training programs in general anaesthesiology for dentists.

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"I would refute the proposal that all problems of the British family physician are encompassed by three letters: NHS. Rather, the causes are multiple, and some bear a striking similarity to those causing a decline of family medicine here in the United States. Many of them are inseparable from the ongoing problems of medical practice in an advancing western society — namely, the lure of the world of hospital medicine fostered by the medical schools, the increasing patient load, the rising population of elderly persons in the population, the greater accent on preventive rather than crisis medicine and the pace of expansion of medical knowledge itself, with the associated fear of professional isolation." — P. C. Whybrow. *Some thoughts upon the discontents of the British general practitioner.* *New England J. of Medicine* 276:268, February 2, 1967.

The dental profession, nationally and in each province, should reappraise the terms of reference, organization and activities of its public health committees. National and provincial health departments should concurrently redefine the objectives of their dental public health units and deploy their personnel and money accordingly. These are the principal recommendations from a recent survey of dental public health within the dental profession and in public health agencies. Dental associations, says the report, should finance their dental public health committees so that each can carry out its assigned duties. Dental public health committees must develop more effective team relationships between practising and sal-



Dentistry's participation in public health

La profession dentaire, à l'échelle nationale et dans chaque province, devrait réévaluer le mandat, l'organisation et les activités de ses comités de santé publique. Les ministères nationaux et provinciaux de la santé publique devraient maintenant redéfinir les objectifs des équipes de santé publique et répartir leur personnel et leurs fonds en conséquence. Ce sont là les principales recommandations faites à la suite d'une enquête menée récemment sur la santé publique dentaire au sein de la profession dentaire et des agences de santé publique. Les associations dentaires, déclare le rapport, devraient financer leurs comités de santé publique de façon à ce que chacun puisse se consacrer à la tâche qui lui est assignée. Les comités de santé publique dentaire doivent établir des relations d'équipe plus efficaces entre les dentistes pratiquants et salariés et tous

aried dentists and all types of auxiliaries, and between the dental health team and other health professions and agencies. Dental public health committees should also set specific goals and plans for the promotion of water fluoridation, says the report. Plans should be made known to the profession as quickly as possible. The report recommends higher levels of graduate training as a prerequisite to the employment of dentists in senior positions in larger health departments. It also advocates more dental research by departments of health, the participation of senior dental officers in the evaluation of subordinate dental staff, and expanded employment opportunities for public health dentists in accordance with their basic science and public health training.

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les genres d'auxiliaires et entre l'équipe de santé et les autres professions et agences sanitaire. Les comités de santé publique dentaire devraient aussi établir des objectifs précis et des plans pour la promotion de la fluoration de l'eau, conclut le rapport. Ces plans devraient être portés, aussi rapidement que possible, à la connaissance de la profession. Le rapport recommande que des niveaux plus élevés de formation graduée soient l'une des conditions à l'emploi des dentistes dans des postes supérieurs aux ministères de la santé. Il demande aussi que les ministères de la santé fassent plus de recherche dentaire, que les dentistes-cadres participent à l'évaluation du personnel dentaire subordonné et qu'il y ait plus d'opportunités d'emploi pour les dentistes dans le domaine de la santé publique et cela, d'après leurs connaissances.

How do the dental profession and the large health departments promote community dental health? How effectively is each structured and staffed for this purpose? Do the health agencies and the profession provide adequate funds for dental public health? What personnel are selected by the profession and by health departments to do the work? Do they collaborate? What kinds of programs have evolved? These are some of the questions which, in 1964, led the Canadian Dental Association to request the University of British Columbia to examine the position of dental public health within the profession and in relation to other agencies, including those of government.

The Canadian Dental Association and all provincial dental associations have had dental public health committees for up to 18 years. Most provincial health departments and their federal counterpart have had established dental health divisions during the same period. Despite this evidence of concern for dental public health, there has never been any systematic assessment of the contribution made to community dental health; neither has there ever been a systematic analysis of the support which each kind of unit receives from its parent body. A survey committee of three was therefore appointed and based at the University of British Columbia. Two surveys were conducted during 1965-66; their results have been reported elsewhere.^{1,2} Presented here is a brief description of the second survey with a summary of the findings and recommendations.

METHOD

The desire to conduct an enquiry by written questionnaire was communicated to the Minister of National Health and Welfare, to all provincial health ministers, to the Canadian Dental Association and to the 10 provincial dental organizations. All agreed to participate.

Two questionnaires — one for the dental associations and one for the health departments — were prepared with assistance from social scientists, educators and

selected dental consultants. Both questionnaires solicited detailed information about dental public health organization, budgets, personnel and programs.

The 156 questions posed in the two questionnaires reflect the shift in public health philosophy arising from advancing knowledge of health measures that can be undertaken on a mass basis. Topics ranged from health education and fluoridation to dental treatment programs. Accordingly, the questions extended over the entire spectrum of public health philosophy — from prevention with but limited curative treatment to full utilization of all available measures for the resolution of health problems affecting a substantial segment of the public.³⁻⁶ Most of the participants replied promptly and adequately.

Statistical summarization of the response data proved to be impractical. The results were therefore tabulated to present the picture as fully as possible. Only the highlights are given here, followed by eight recommendations — three to the dental profession and four to the departments of health.

FINDINGS FROM THE PROFESSION

Organization and Administration.—Organizational and administrative patterns for dental public health vary considerably. Arrangements, though loose and meagre in some provinces, are more sophisticated in others. The patterns in use were adopted to meet the kind of need recognized many years ago. Though the demands of modern public health upon all the health professions have increased in number and diversity, this is not yet reflected by organizational and administrative response from the dental profession.

Financial Support.—Dental public health funding by the profession shows similar variation. There is no support in some provinces, while in others fairly substantial sums of money are allocated for this purpose. The highest capita contributions in 1965 were made in Alberta (\$3.75) and Ontario (\$3.71). Some dental public health committees have been much more resourceful than others in raising funds

from within and without the profession. Quebec, Ontario and Alberta groups have received considerable support from their respective provincial governments and from the federal government.

Personnel.—Members and advisers of dental public health committees are almost exclusively drawn from the profession. Only one provincial dental organization has drawn committee members from allied health professions.

Programs.—Dental public health programs range from almost total absence in some provinces to very active, though not particularly diversified ones, in others. Content, while somewhat broader in some provinces, is very limited in most instances.

All existing programs contain a health education component. But despite dentists' avowed interest in health education, very little use is made of the knowledge and skills available from the field of education. Nevertheless, there is some indication that organized dentistry is moving towards stronger team relationships with other health professions and health agencies.

FINDINGS FROM THE DEPARTMENTS OF HEALTH

Organization and Administration. — The organization of dentists and the administration of dental programs in health departments have been criticized by dentists.^{7,8} The administrative problems referred to are probably attitudinal and rooted in history. Dentistry's status as an autonomous rather than a paramedical profession requires tact on the part of both the dentist and the medical administrator, especially when professional knowledge and prerogatives are affected.

The status and administrative relationships of dental units within health departments, though generally suited to the functions which they have performed to date, offer scope for the development of greater team-work.

The reported lack in more than half the health departments of a document defining the duties, responsibilities and relationships of the dental unit reflect considerable uncertainty on the part of all concerned.

Personnel.—Like other professionals, dentists employed by health departments have responsibilities not only to their employer but also to their profession. Respect from the members of both agencies for the public health dentist's competence serves to enhance his effectiveness and improve relationships between the departments and the profession.

Health departments are likely to play a greater role in public dental programs.³ This means that we will need — perhaps sooner than we think — many more dentists highly qualified in public health and related areas.^{10,11} Even now a good deal of dentally-related research awaits direction by dentists qualified to work with and co-ordinate multidisciplinary research teams.

The number of public health dental personnel (dentists and hygienists) employed in health department dental units has been virtually static since the units were established. This often reflects an inflexible dental establishment; occasionally it marks appointments made at a health region level rather than in the central dental unit of the provincial health department.

Most agencies periodically assess the competence of their staff. In some health departments the evaluation of the competence of dental personnel would become more realistic, acceptable and reliable if the lay administrators concerned were assisted by dentists.

Programs. — Health department dental programs vary widely in content and extent — probably also in intensity and colour. All dental units of senior departments provide similar educational and preventive services. A majority include clinical services, chiefly for children. There is a growing and laudable (if effectively done) tendency within recent years to evaluate dental programs.

Research and service programs reflect some team-work within and beyond the departments. There is also a general pattern of collaboration with health educators; but only those units that engage in research contribute articles to professional journals.

The promotion of fluoridation is unrestricted except in two provincial departments where dental personnel are not permitted to address public groups on the subject. Nevertheless, only three dental units cooperate with the profession in a planned program to promote fluoridation through the private dentist. Only one unit intends to do research related to fluoridation. This confirms previous observations that the promotion of fluoridation does not receive the attention it deserves.^{12,13}

Very little effort is made to obtain data on the dental health of adults. Also neglected by most dental units is the control of radiation hazards. Three provinces (Saskatchewan, Ontario and Newfoundland) endeavour to induce dentists to settle in smaller communities. The other provinces apparently do very little in this respect.

Inevitably, some administrators will do a better job than others in describing their own programs. Consequently, the quality of a program cannot be judged solely from the reported survey data. Some people work quietly and assiduously while others, proceeding no more rapidly, may embellish their achievements. Each may have different but equally important objectives and each may be working by differing but equally effective methods.

RECOMMENDATIONS TO THE DENTAL PROFESSION

"1. That the Canadian Dental Association and each provincial dental body concerned with public health matters on behalf of the profession reappraise the terms of reference, organization and activities of its public health committee.

"The primary aims of the committee should include:

"(a) Developing an effective team relationship among all dentists, whether pub-

licly or privately employed, and all types of dental auxiliaries.

"(b) Developing good working relationships between the dental health team and other health professions and agencies, voluntary and governmental.

"(c) Planning, advising and communicating within and beyond the dental profession in relation to activities for the promotion of public health. (Duties unrelated to the promotion of health, such as serving as a bargaining agent on fees for treatment should not be a task for a public health committee.)

"2. That the Canadian Dental Association and each provincial dental association provide an annual budget adequate to enable its public health committee to carry out its duties.

"3. That all public health committees define specific goals and prepare specific plans for the promotion of water fluoridation.

"In each province immediate, intermediate and ultimate goals should be set and plans for the attainment of each goal be prepared and made known to the profession as soon as possible."

RECOMMENDATIONS TO THE DEPARTMENTS OF HEALTH

"1. That the health departments at the national and at the provincial levels do the following:

"(1) Re-examine and redefine the relationships and the objectives of their dental public health units.

"(2) In the light of the nature of the defined relationships and objectives, re-examine and revise the resources — organization, personnel, financial.

"(3) Ask their dental units to direct their resources to establishing programs designed to attain their objectives.

"2. That the larger health departments require for future permanent appointment to their senior dental positions the applicable higher levels of graduate university training.

"3. That increased emphasis be placed on the planning and support of dental health research by departments of health.

"In addition, it is recommended that all health research projects be screened for possible inclusion of oral health or dental care components.

"4. That in matters affecting the selection, appointment, training, rating, promotion and termination of employment of dentists and other technical dental personnel, the help of the senior dental officer of the department be regularly sought.

"5. That consideration be given to broadening the range of opportunities and responsibilities of dentists employed as dental public health officers, basing them as much or more upon the basic medical science and public health science training of dentists as upon the application of those sciences to clinical dentistry."

CONCLUSION

The foregoing analysis presents a condensed panoramic view of dentistry's participation in public health. Our survey did not encompass all of dentistry's actual and potential contributions to the health of the community. It does, however, reveal some pressing needs. The limited number of recommendations are designed to help the profession and the health departments identify and resolve these problems.

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Unusual radiographic appearance of a probable incisive canal cyst

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Radiographic examination of a 39 year old man revealed a large asymptomatic maxillary cystic lesion with multiple diffuse radiopacities extending from the left central incisor to the right first molar. The right antrum was exposed following enucleation of the cyst. Tissue specimens were subjected to microscopic examination. The cyst lining consisted of benign squamous epithelium. The antral specimen showed pseudostratified ciliated columnar epithelium associated with acute and chronic inflammation. The adjacent bone showed evidence of new bone formation. The green viscous content of the cystic cavity was characterized by calcium carbonate, calcium oxalate and nonfibrin protein.

L'examen radiographique d'un homme de 39 ans a révélé l'existence d'un kyste asymptomatique du maxillaire avec de multiples radiopacités diffuses, s'étendant de l'incisive centrale gauche à la première molaire droite. L'énucléation du kyste eut pour conséquence, l'exposition du sinus droit. L'examen microscopique de la lésion a montré que le kyste était formé à l'intérieur, d'épithélium squameux bénin. Le prélèvement du sinus consistait d'un épithélium cilié pseudo stratifié, avec inflammation aiguë et chronique. L'os adjacent montrait une néo-formation osseuse. Le contenu vert et visqueux de la cavité du kyste comprenait du carbonate de calcium, de l'oxalate de calcium et des protéines autres que la fibrine.

Fissural cysts result from proliferation of persistent epithelium along lines of fusion of various bones or embryonic processes. Of the inclusion cysts, the median anterior maxillary cyst (nasopalatine duct cyst, incisive canal cyst) is the most common. It is thought to arise from the nasopalatine

duct, a structure composed of respiratory epithelium in its nasal portion and squamous epithelium in the oral portion.

These lesions are usually asymptomatic to the patient and give little, if any, clinical indication of their presence to the examiner.¹



FIGURE 1 Occlusal radio-graph demonstrating the mid-line extension of the lesion and displacement of the right central incisor.

Radiographically, the cyst usually lies in the midline, between or above the roots of the maxillary central incisors, and may cause some divergence of their roots.¹ As an aid in differential diagnosis, odontogenic cysts only rarely cross the midline of the palate even though they may be large in size. Vazirani² reported such a cyst which expanded outwardly, producing facial deformity, yet extended only to the midline of the palate without crossing

over. The incisive canal cyst may contain one or more opaque concretions which consist of calcium carbonate. Dental cysts, however, do not usually contain radiopaque material.³

Histologically, the cyst lining is composed of either stratified squamous epithelium, pseudostratified ciliated columnar epithelium or both. The dual type of epithelium emphasizes the origin of the cyst from the nasopalatine canal.



FIGURE 2 Occlusal radio-graph showing the entire lesion. Note radiopaque material within the cyst.

CASE REPORT

History and Examination.—J.W., a 39 year old white man, came to the Oral Surgery Clinic at King County Hospital, Seattle, to have all remaining teeth extracted. The teeth were and had always been asymptomatic. The patient, however, said they were "bad" and wished extraction before "they started to ache." There was no significant past medical history.

The patient, who seemed well developed and well nourished, was in no distress. Intra-oral examination revealed a partial complement of carious and periodontically involved teeth. The soft tissues and bony structure were normal. No physical abnormalities were detected.

A radiographic survey disclosed a well-defined radiolucency containing multiple diffuse opacities and extending from the maxillary left central incisor to the area of the right first molar.

Occlusal films revealed the lesion *in toto*. A 5 x 4 cm. circular radiolucency with a circumscribed, slightly corticated margin was evident. The lesion crossed the midline of the palate (Figures 1 and 2).

Although there was no evidence of root resorption, the right maxillary central incisor was slightly displaced. The lamina dura did not appear continuous; this is most likely due to overexposure of the film. The lesion dipped into the edentulous space formerly occupied by the roots of two extracted bicuspid teeth (Figure 2).

Although a Water's sinus projection showed some opacity of the floor of the right maxillary sinus, we could not identify a definitive lesion (Figure 3).

On retrospective questioning the patient recalled that the two bicuspids were extracted "about five years ago." The radiographic evidence suggested that a second molar had also been extracted and that the third molar had drifted to its present position.

There was no expansion of the buccal plate of bone. All teeth in the area gave a normal response to vitality tests. These test readings were verified, thus eliminating the likelihood of a periapical odontogenic cyst.

Laboratory values, including a complete



FIGURE 3 Water's sinus view.

blood count, urinalysis, alkaline phosphate, serum calcium and phosphorus, were within normal limits.

We concluded that the lesion might be a fissural cyst (incisive canal variety). Differential diagnosis included a residual dental cyst, a primordial cyst of long standing.

The patient was scheduled for extraction of the remaining teeth, biopsy and possible enucleation of the lesion should it be cystic.

Operation—The remaining teeth were extracted under general naso-endotracheal anaesthesia administered via the left nares. An alveoloplasty was also performed. The mucoperiosteal flap was further elevated to expose the buccal wall of the right maxillary antrum. We then perceived a slight expansion of the cortical plate in this area. We could indent this

bony wall with finger pressure. We perforated the cortex with 22 gauge needle and aspirated 2 ml. of greenish yellow fluid.

A 1.5 cm. circular opening was then made in the area of bony expansion. This was slightly distal to the typical Caldwell Luc approach. A thin lining became evident and this was opened to expose the contents of the cyst. We aspirated the viscous fluid which contained greenish granular concretions of irregular shape and size, the largest being approximately 3 mm. in diameter. The lining was then curetted from a smooth bony crypt which was ovoid in shape and localized to the right side except in the anterior region.

The posterior wall buckled during curettage, thus exposing the antrum. This opening was enlarged to facilitate pneumonization. A nasal antrostomy was also performed. The area was thoroughly irrigated with 3 per cent hydrogen peroxide both for lavage and to aid haemostasis. The antrum and cystic cavity were packed with one-half inch petroleum jelly gauze the end of which extended through the nose. The flaps were repositioned and further alveoloplasty performed to induce primary closure of the area.

The patient had an uneventful recovery. The pack was removed 10 days later and antral irrigations were carried out bi-weekly for another two weeks.

Pathological Report.—Three specimens were submitted for microscopic examination. The cyst lining consisted of benign squamous epithelium. A portion of the antral lining and adjacent bone revealed pseudostratified ciliated columnar epithelium associated with acute and chronic inflammation and evidence of new bone formation.

Chemical analysis of the cystic contents disclosed calcium carbonate, calcium oxalate and nonfibrin protein.

DISCUSSION

We believe this was an incisive canal cyst which spread unilaterally in a posterior direction with displacement and replacement of the maxillary antrum. The

presence of new bone formation shows that active expansion was occurring. Incisive canal cysts rarely become large because they are discovered on routine radiographs or because a drainage route may be established. Stafne⁴ states that the avenues of drainage may occasionally be completely closed off, thus inducing further growth of the cyst. A few cysts may therefore become quite large. Stafne reports four cases of large incisive canal cysts.

Another possible explanation for the unilateral spread of this cyst lies in the fact that there are two nasopalatine ducts and the incisive canal is separated into two or more small canals. A cyst arising in one of these may develop mainly on that particular side.⁵ This lesion was lined by stratified squamous epithelium, a lining that is common to fissural cysts. Also in favour of a fissural cyst is the totally asymptomatic character of the lesion. The differentiation of the incisive canal cyst from the median palatal inclusion cyst is that the latter, as well as being less common, usually results in a palatal swelling.

The possibility of odontogenic origin cannot be entirely dismissed, notwithstanding our diagnosis of this lesion. But odontogenic cysts rarely cross the midline and do not contain radiopaque material.³

It is interesting that, despite the large size of this lesion, a Water's sinus view (Figure 3) gave little indication of its presence. This reinforces the value of a periodic complete dental radiographic examination and the necessity of supplementing suspicious extra-oral films with intra-oral radiographs.

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Work objectives and skills associated with high school students' interest in dentistry

Job satisfaction, the variety of the dentist's work and professional prestige are the occupational values which appealed to New Jersey high school students considering careers in dentistry. The economic rewards of dental practice and the dentist's working conditions were relatively insignificant in stimulating interest in the profession.

Les élèves des écoles secondaires du New Jersey qui s'intéressent à une carrière de dentiste sont attirés particulièrement par le prestige professionnel, l'intérêt, et la variété du travail. La rémunération pécuniaire de la profession dentaire et les conditions de travail ne jouent qu'un rôle secondaire, en ce qui concerne leur intérêt pour la profession.

The pool of future applicants to the dental profession can be enlarged if efforts are made to interest high school students in the profession. Moreover, an early decision gives applicants ample time to plan an appropriate predental education. On the other hand, if recruitment resources are limited, the effort may be used to better advantage if directed toward pre-professional students who are obviously closer to implementing any plans they may have for professional training.

This paper describes findings from a survey of high school students which suggest themes worth emphasizing in recruitment efforts.

SOURCE OF DATA

The Department of Sociology at Rutgers University, in cooperation with the Division of Dental Health, United States Public Health Service, designed a self-administered questionnaire for obtaining information about students' objectives in their future occupation, their self-rating of abilities, their rating of the conditions of work in dentistry, and like matters. Most of the questions were pre-coded, requiring the students to make a choice between printed alternatives or check categories that represented their answers. The study, conducted in 1961, had to be limited to

schools in which the authorities were willing to cooperate. Seven public high schools, each located in a different New Jersey community, participated in the survey. Questionnaires were handed out to all third and fourth year students in high ability classes who were present on the day their school was visited for purposes of this research.

The findings are about the 560 boys and 659 girls who were taking a program to prepare them for university entrance. Slightly more than half of the fathers of both the boys and the girls had some university education. Race was not asked, but most likely all of the students were white, since the schools were located in white neighbourhoods.

INTEREST IN DENTISTRY AS A
FUTURE PROFESSION

Asked what they expected or desired their future occupation to be, 3 per cent of the boys and none of the girls wrote in 'dentist' (Table 1). Given the large number of professions which could be considered, the small percentage expecting or desiring to be dentists might have been anticipated. Nevertheless, some other occupations were relatively popular. Boys displayed a marked preference for the category 'engineer' (19 per cent), followed by 'scientist' (11 per cent). Among the girls the most popular category was 'teacher' (35 per cent), followed by 'nurse' (8 per cent).

Given a list of 31 occupations including a number of health professions and asked to select any that might possibly interest them, an additional 10 per cent of the boys and 2 per cent of the girls checked

'dentist.' Finally, given the same list, 56 per cent of the boys and 79 per cent of the girls said they would not want to be a 'dentist' (Table 1).

If this sample is representative, any recruitment effort with high school students will be initiated with a small percentage (13 per cent of the boys and 2 per cent of the girls) evidencing some interest in being a dentist. In what follows, factors associated with interest in or rejection of dentistry are discussed in order to develop clues about themes which might induce more students to consider the profession.

SELF-RATING OF ABILITIES

Self-ratings on mechanical and technical skills were relevant to interest in or rejection of dentistry. Boys who rated themselves high on mechanical or technical skills were more likely than other boys to be interested in becoming dentists. Girls who rated themselves high on mechanical or technical ability were less likely than other girls to reject dentistry as a potential future occupation (Table 2). Because of the small percentage of girls with an interest in dentistry, the factors (in Table 2 and other tables prepared) were checked for association with the percentage of the girls who said that they would not want to be dentists. Unless otherwise stated, all differences discussed in this paper are statistically significant, based on the chi square test at the 5 per cent level of significance.

Self-ratings on scientific or intellectual ability, ability to deal with people, or creative or artistic ability were not significantly associated with interest in or rejection of dentistry.

TABLE 1 High school students' interest in being a dentist.

Degree of interest	Boys	Girls
Expect or desire to be a dentist	3%	0%
Might possibly be interested in being a dentist	10	2
Would not want to be a dentist	56	79
All others	30	19
Number of students	560	659

TABLE 2 High school students' interest in dentistry according to self-rating of their abilities.

Degree of interest in being a dentist	Boys' self-rating of abilities											
	Scientific or intellectual			Mechanical or technical			Ability to deal with people			Creative or artistic		
	None, little	Middle	Some, lot	None, little	Middle	Some, lot	None, little	Middle	Some, lot	None, little	Middle	Some, lot
Expect or desire to be	4%	2%	3%	2%	2%	5%	2%	2%	3%	2%	3%	5%
Might be interested in	5	10	11	8	10	12	9	9	11	11	9	10
Would not want to be	64	60	54	59	55	56	61	59	54	55	58	56
All others	27	28	31	30	34	27	28	29	31	32	29	29
Number of boys	56	124	377	143	157	257	64	140	356	211	153	193

Girls' self-rating of abilities											
Might be interested in	0%	1%	3%	2%	2%	2%	8%	1%	2%	3%	2%
Would not want to be	84	81	77	82	78	67	80	74	80	74	81
All others	16	18	20	16	20	31	12	26	18	23	17
Number of girls	94	211	353	395	172	90	25	121	512	174	151
											334

The original questionnaire contained five degrees of self-rating in the abilities and five answer categories to the other items shown in Tables 2-5. These have been combined into three categories in the published tables. However, the original tabulations were tested for statistical significance and for consistency of patterns of association.

JOB OBJECTIVES

The students were also asked how much they cared about four things people seek from jobs: (1) satisfaction of doing the work itself, (2) financial success, (3) prestige, and (4) pleasure of helping other people.

Among the boys helping others or getting satisfaction out of doing the work was not associated with interest in or rejection of dentistry (Table 3). The other two factors were, however, relevant. The boys who cared about prestige or financial success were more interested in being dentists than those who did not care.

Among the girls none of the job objectives was associated with interest in or rejection of dentistry.

IDEAL CONDITIONS OF WORK AND INTEREST IN DENTISTRY

The students were given the following alternatives and were asked to select the characteristics they would choose as fitting an ideal job:

- 1. Work different hours on different days, or work regular hours.
- 2. Have the hours arranged for you by the job, or change hours yourself to meet your own needs.
- 3. Work mostly in the same community, or travel about during your work.
- 4. Work mostly in the same room, or move from place to place during your work.
- 5. Concentrate on a few tasks, or perform a variety of tasks.
- 6. Have a secure job with a moderate income, or have a job with high pay but a considerable risk of losing the job.
- 7. Work mainly with things, or work

TABLE 3 High school students' interest in dentistry according to their occupational objectives.

Degree of interest in being a dentist	Boys' rating of how much they cared about each objective											
	Satisfaction of doing the work itself			Financial success, making money			Prestige, respect of others			Pleasure of helping other people		
	Would not care	Middle	Would care	Would not care	Middle	Would care	Would not care	Middle	Would care	Would not care	Middle	Would care
Expect or desire to be	*	5%	3%	3%	0%	4%	0%	1%	4%	6%	3%	3%
Might be interested in	*	13	10	0	8	12	3	6	12	10	12	10
Would not want to be	*	47	57	60	76	53	76	61	54	55	55	57
All others	*	34	29	38	16	32	21	32	30	29	30	30
Number of boys	6	38	516	40	74	445	33	84	443	51	98	310
Girls' rating of how much they cared about each objective												
Might be interested in	*	0%	2%	4%	0%	3%	1%	2%	2%	0%	3%	2%
Would not want to be	*	88	79	75	78	81	74	80	79	83	84	79
All others	*	12	19	21	22	16	25	18	18	17	13	19
Number of girls	3	17	639	104	196	358	57	129	471	12	38	609

*Per cent not shown because base was less than 10.

mainly with people.

8. Work mainly by yourself, or work mainly with other people.

9. Work with people you know well, or meet new people every day.

10. Work under supervision, or supervise yourself and others in the work.

11. Work mainly with little children, or work mainly with adults.

None of these choices was associated with interest in or rejection of dentistry. We infer, therefore, that the conditions of work students desire are not relevant to the appeal of dentistry.

GENERAL ABILITIES NEEDED BY THE DENTIST

The students were asked to rate the extent to which the dentist needs (1) scientific or intellectual ability, (2) mechanical or technical skills, (3) ability to deal with people, and (4) creative or artistic ability. Their judgements about the requirement of these abilities were not associated with their interest in or rejection of dentistry.

JOB OBJECTIVES REALIZED BY THE DENTIST

The students were also asked to rate whether the work of the dentist was satisfying, whether there was much chance of money or success in it, the degree of prestige it had, and whether it offered the opportunity to help people.

Among the boys, those who thought the dentist achieved satisfaction in doing his work were more likely to be interested in dentistry than those who did not. For their ratings of the chance of money or success in dentistry, the pattern of association with interest in dentistry is inconsistent (Table 4). However, those who thought the dentist could achieve money or success were more likely to reject dentistry than those who thought he could not. This is contrary to what was expected, since boys who wanted financial success were more likely to be interested in dentistry (Table 3).

The boys' ratings of the dentist's potential of realizing prestige were not significantly associated with interest in or rejection of dentistry. Their ratings of his po-

tential of realizing the opportunity to help people were likewise not associated.

Like the boys, girls who thought the dentist had a high chance of achieving money and success were more likely to reject dental careers. Also like the boys, girls who thought the dentist achieved satisfaction in his work were less likely to reject the profession. And again, like the boys, the girls' ratings of the dentist's potential of achieving prestige or his ability to help people were not relevant to their interest in or rejection of dentistry.

OTHER QUALITIES OF THE DENTIST'S WORK

The students were asked to rate the dentist's work according to the following series of alternatives:

- 1. Causes a lot of pain to patients, or does not cause much pain to patients.
- 2. Varied interesting work, or routine dull work.
- 3. Works regular hours, or works irregular hours.
- 4. Arranges own working hours, or works according to hours set by the job itself.
- 5. Can work short hours, or must work long hours.
- 6. Meets new people every day, or works with the same people most of the time.
- 7. Works mainly with things, or works mainly with people.
- 8. Works entirely in one room, or moves from place to place during work.
- 9. Supervises self and others, or is supervised by others.
- 10. Has a lot of responsibility, or does not have any responsibility.
- 11. Too much training required, or not too much training required.
- 12. Causes fear in people, or does not cause fear in people.

Of these 12 choices, only numbers 2 and 11 were associated with an interest in or a rejection of dentistry. Dentistry had greater appeal for students who judged the dentist's work varied and interesting (No. 2). This choice probably reflects a similar attitude as the rating of satisfaction achieved in dentistry (Table 4). The profession also had greater appeal for stu-

TABLE 4 High school students' interest in dentistry and their rating of the occupation of dentist.

Degree of interest in being a dentist	Boys' rating of occupation of dentist											
	Satisfaction of doing the work itself			Chance of money and success			Prestige, respect of others			Ability to help other people		
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Expect or desire to be	0%	2%	5%	0%	0%	3%	0%	0%	4%	0%	3%	3%
Might be interested in	5	5	14	7	0	11	13	0	11	8	3	11
Would not want to be	72	68	47	29	64	57	47	75	55	42	74	56
All others	23	25	34	64	36	29	40	25	30	50	21	30
Number of boys	101	119	335	14	22	517	15	55	407	12	34	510
	Girls' rating of occupation of dentist											
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Might be interested in	0%	2%	3%	8%	0%	2%	8%	0%	2%	*	*	2%
Would not want to be	90	78	77	58	83	79	69	85	78	*	*	79
All others	10	21	20	33	17	19	23	15	19	*	*	19
Number of girls	92	129	437	12	35	612	13	67	578	5	9	643

*Per cent not shown because base was less than 10.

dents who thought that dentistry did not require too much training (No. 11).

DISCUSSION AND CONCLUSIONS

As expected, boys and girls differed considerably in their initial interest in dentistry. Because of the rarity of women dentists in North America and the seeming prejudice against the entry of women into mainly male occupations, it may be difficult to recruit more women into the profession. Table 2, however, suggests that girls who feel that they have little mechanical or technical ability are more likely to reject dentistry. De-emphasis of the technical aspect of dentistry might counter this tendency and increase the numbers of girls interested in going into the profession. Such de-emphasis should be approached with caution, however, lest it discourage both boys and girls who are interested just because they would use their technical and mechanical abilities in dentistry.

Since students who judged that dentistry did not require too much training were more likely to be interested in it than other students, there may be reason to reassure potential recruits that the training is not excessive. The students' judgement of the training required may arise from the seemingly long time interval before they enter a professional school. It would have been instructive had they been asked how many pre-professional years are required before one can enter a dental school.

The economic rewards of dentistry may boomerang if used as a recruitment theme. Boys who wanted to make money were more likely to be interested in dentistry (Table 3), but those who thought dentists could achieve financial success tended to reject the profession (Table 4). The latter finding may reflect a belief that dentists charge too much and thereby become rich. Whatever the reason, financial gain is a theme to avoid in recruitment efforts.

Emphasis on the dentist's work conditions or the conditions students might want for themselves would likewise be unproductive. In this study such factors were not statistically associated with interest in dentistry. Stressing the satisfactions and variety of the work (Table 4) seems more important. Finally, emphasis on the prestige of the profession could be effective. In this respect reference could be made to published surveys indicating the high prestige of the dentist.^{1,2}

*Dr. Linn is a sociologist with the Education Research Program, Division of Dental Public Health, Public Health Service, US Department of Health, Education and Welfare. He is now stationed at the USPHS Dental Health Centre in San Francisco. During the past four years Dr. Linn has done research on public attitudes and behaviour about dental care, dental professional role relations, and dental students' objectives in dentistry. He recently initiated a study of women dentists' careers.

1. Kriesberg, Louis and Treiman, Beatrice R. Public's views on dentistry as a profession. *J. Dent. Educ.* 25:247, 1961.
2. Hodge, R. W., Siegel, P. M. and Rossi, P.H. Occupational prestige in the United States, 1925-63. *Amer. J. Sociol.* 70:286, 1964.

14th Avenue at Lake Street

Fluoridation and Individual Freedom • The rights of the individual are necessarily constrained when he accepts the benefits of life in a community and it is expedient to keep constant watch lest bureaucracy should feed its self-esteem on liberties it filches from those who should be its masters. But having accepted this one might ask, what is it that urges people to demand that the sacred rights of the individual require that something [fluoridation] which in no way restricts the expression of his religious or political beliefs and can bring no physical harm to him, shall be denied to children when it is proved to be of inestimable benefit to them? — Editorial comment. *Brit. Dent. J.* Vol. 122, Feb. 21, 1967.

L'Association

Réunion des responsables de l'ADC et de l'AMC

Les responsables de l'Association dentaire canadienne et de l'Association médicale canadienne se sont réunis le 18 avril, pour la première fois dans l'histoire des deux associations. Les problèmes communs ont été étudiés au cours de la session conjointe qui s'est tenue au siège social de l'ADC. C'est l'ancien président de l'AMC, le Dr R. K. Thomson qui avait suggéré cette réunion pour établir des liens plus étroits entre les deux associations.

Le Dr W. P. Munsie de Vancouver, président; le Dr Henri Brouillet, Montréal, président désigné, le Dr J. P. Coup-land, Ottawa, ancien président et le Dr W. G. McIntosh, secrétaire, représentaient

l'ADC. Les représentants de l'AMC étaient: le Dr N. J. Belliveau, Montréal, président; le Dr R. K. Thomson, Edmonton, ancien président; le Dr R. D. Atkinson, Waterloo, Ontario, président du conseil général et du comité exécutif de l'AMC et le Dr A. F. W. Pearl, Toronto, secrétaire général. Les participants ont décidé de tenir une autre réunion en automne.

Canada

Neuf dentistes passent les examens intérimaires du Collège

Neuf dentistes, de toutes les parties du Canada, ont passé avec succès, le 30 mars, l'examen initial intérimaire, établi par le Collège royal des dentistes du Canada.

L'Association Dentaire Canadienne

sollicite des demandes pour le poste de

REDACTEUR-ADJOINT

Il s'agit d'un travail à quart de temps qui sera attribué à un dentiste francophone du grand Montréal ou de Québec. Travaillant de concert avec le rédacteur il sera responsable de la préparation des textes français qui sont publiés dans le *Journal de l'Association dentaire canadienne*.

Ses responsabilités comprendront la mise au point des articles de fond, la rédaction des éditoriaux de même que certaines responsabilités relatives à la traduction des nouvelles et des textes techniques.

Au moment de l'attribution de cette fonction on tiendra compte des dispositions qu'a le candidat pour écrire et se servir du Français et de l'Anglais.

Les demandes accompagnées d'un résumé des qualifications du candidat doivent parvenir par écrit au:

**Comité de sélection du Conseil du Journalisme de l'ADC,
a/s Dr Georges Pelletier
2150 rue Crescent
Montréal 25, Qué.**

Pour tout renseignement additionnel bien vouloir communiquer avec le Dr Pelletier.

Ils deviendront fellows au cours d'une cérémonie à Vancouver, le 29 juin. Les nouveaux sociétaires sont:

Chirurgie buccale: A. J. Wilson, Windsor, Ontario.

Orthodontie: M. G. Badner, Toronto; P. Bokstrom, Vancouver; J. G. Dale, Toronto; R. M. Hamilton, Oakville, Ont.; H. J. Levitt, Montréal; et T. E. Spracklin, Halifax.

Périodontie: M. A. Listgarten, Toronto et H. L. Samuels, Edmonton.

Convocation du Collège royal à Vancouver

La réunion de 1968 du Collège royal des dentistes du Canada se tiendra samedi après-midi, 29 juin, dans le nouvel auditorium de musique de l'Université de la Colombie britannique, à Vancouver. Le Président offrira un dîner pour tous les fellows et les candidats ainsi que leurs épouses, le vendredi soir, 28 juin.

Chronique internationale

Le Conseil de l'ADA propose d'augmenter les cotisations

Le Conseil d'administration de l'American Dental Association a envoyé à tous ses membres un bulletin d'information, pour leur expliquer pourquoi il a proposé une augmentation de \$20 de la cotisation de l'ADA. Les délégués considéreront cette proposition lors de leur réunion de 1968. Si elle est approuvée, l'augmentation entrera en vigueur le 1er janvier 1969.

Les raisons pour l'augmentation des cotisations sont: la baisse du revenu qui était inférieur de quelque \$160,000 aux estimations pour 1967; l'augmentation des dépenses qui, en 1967 ont dépassé le chiffre de 1966 d'environ \$622,000; la diminution du surplus d'exploitation de \$203,000 en 1966, à un déficit estimé à \$86,000 en 1968 et le fait que les revenus provenant des cotisations n'ont pas augmenté. Une autre raison expliquant la demande d'augmentation de cotisation est la possibilité que l'Association doive payer quelque \$500,000 par an d'impôts fédéraux sur son

revenu provenant de la publicité et des expositions et locations commerciales.

Libre échange des dentistes en Scandinavie

Dans les pays scandinaves, de nouveaux arrangements permettront aux dentistes qui déménagent d'un pays à l'autre, d'obtenir le droit d'exercer soit comme dentiste privé, soit comme dentiste de santé publique. La seule condition est de passer un examen sur les lois qui régissent la profession dentaire dans le nouveau pays.

Des infirmières dentaires de la Nouvelle-Zélande, en Australie

Les premières infirmières dentaires à suivre des cours en Australie du Sud recevront leur diplôme en mars 1969. C'est le deuxième état de l'Australie qui ait décidé de fournir des auxiliaires dentaires sur le modèle de la Nouvelle-Zélande. Seize étudiantes — infirmières dentaires font actuellement leurs études à Adelaide.

Réunion des orthodontistes espagnols du 22 au 27 septembre

Les dentistes canadiens ont été invités à la 14e réunion de la Société orthodontique espagnole, à Torremolinos, Malaga, du 22 au 27 septembre. Le sujet principal traité à la réunion sera le traitement des malocclusions de la classe I et du squelette, dans les dentitions mixtes et permanentes. Les séances scientifiques auront lieu à l'hôtel Pez Espada de Torremolinos.

Pour plus de renseignements, veuillez vous adresser à Antonio Fernandez-Baca Ortega, Plaza Queipo de Llano 4, Malaga, Espagne.

25e réunion sur la biologie buccale à Palm Springs, du 11 au 15 octobre

L'American Institute of Oral Biology célébrera ses 25 ans d'existence, à sa réunion du 11 au 15 octobre, à l'Oasis

Hotel de Palm Springs, Californie. Feront des communications:

Robert Frank, de l'Institut dentaire de Strasbourg, France, qui parlera de la microscopie électronique de l'amélogénèse et de la dentinogénèse, de l'ultrastructure des caries à leur début et de la plaque, de la sclérose dentinaire et de la base ultrastructurale de la sensibilité dentinaire;

E. S. Gordon, du département de médecine de l'Université de Wisconsin dont les sujets seront l'écologie humaine, son importance en ce qui concerne la santé et la maladie, les fonctions combinées de l'insuline et de l'hormone de croissance et les dérangements métaboliques provoqués par l'alcool.

R. O. Greep, de la Faculté de médecine de Harvard de Boston, qui traitera du fondement biologique de l'augmentation de population et du contrôle de la fertilité ainsi que des dernières découvertes en endocrinologie.

Neil Jenkins, de la Faculté dentaire de Sutherland, de Newcastle-upon-Tyne, qui parlera de la composition et de la formation de la plaque dentaire, de la physiologie de la parole et des derniers travaux sur la sensation gustative.

Hans Selye, de l'Institut de médecine et de chirurgie expérimentale, de l'Université de Montréal, parlera des tensions et de la dentisterie, des récentes découvertes en calciphylaxie et calcergie ainsi que du mécanisme de l'inflammation et de la thérapeutique antiphlogistique.

Pour plus de renseignements et pour

obtenir des formules d'inscription, veuillez vous adresser au Dr J. A. Ducasse, 240 E. Lake Ave., Watsonville, Californie, 95076, USA.

Organismes dentaires

Le Montréal Dental Club étudie l'avenir de la dentisterie au Québec

Le Montréal Dental Club, à sa réunion du 18 mars, a étudié l'évolution de la dentisterie organisée au Québec. Le Dr Jacques Fiset, Montréal, président de l'Association dentaire du Québec a décrit les efforts qui sont faits actuellement pour faire fusionner son organisation avec l'association professionnelle des chirurgiens-dentistes du Québec (connue précédemment sous le nom de Syndicat de l'Association professionnelle) en un nouvel organisme qui représenterait tous les dentistes pratiquant au Québec. Le docteur Lorenzo Picard, président du Collège des chirurgiens-dentistes de la Province de Québec a annoncé que son conseil exécutif demanderait l'approbation des Gouverneurs du CDSPQ pour former un comité conjoint qui étudierait les problèmes de la dentisterie organisée.

Etaient présents également à cette réunion: le Dr Henri Brouillet, président désigné de l'Association dentaire canadienne et le Dr Marcel Archambault, vice-président du CDSPQ.



Le président de l'Association dentaire canadienne, le Dr W. P. Munsie, a pris la parole devant le Bureau des Gouverneurs du Collège des chirurgiens-dentistes de la province de Québec, lors de la réunion du Bureau, à Québec, le 19 avril dernier. C'est un événement sans précédent dans les 99 ans d'existence du Collège. Appelée originellement, la Société odontotechnique de la province de Québec, le Collège fut incorporé le 30 mars 1869. On reconnaît sur cette photo prise au cours de la réunion du 19 avril (de gauche à droite) les docteurs R. M. LeBlanc, Lorenzo Picard, président du CCDPQ, W. P. Munsie, président de l'ADC, Claude de Grandmont, Gérard de Montigny, Gustave Ratté, Albert Colle, D. H. Muhlstock, Henri Brouillet, président désigné de l'ADC, H. L. Mussells, James McCutcheon, Rémy Langlois, J. M. Chamard, Conrad Godin et Henri Provencher.

Facultés dentaires canadiennes

Nouveau programme conduisant à la maîtrise ès-sciences à l'Université de Montréal

La Faculté de chirurgie dentaire de l'Université de Montréal vient de créer une nouvelle "Maîtrise ès-sciences". Le programme conduisant à la maîtrise ès-sciences (option biologie dentaire) est offert aux diplômés en chirurgie dentaire ou aux médecins qui se destinent particulièrement à une carrière d'enseignement et de recherches dans les disciplines biomédicales appliquées à l'odonto-stomatologie.

La biologie dentaire devient un territoire d'études multidisciplinaires où se regroupent des connaissances qui servent à résoudre les problèmes posés par les anomalies et maladies buccales.

Le programme qui débutera en 1968-69 sera offert, pour le moment dans la majeure de pathologie dentaire sous la direction du docteur Z. Mézl, directeur du département de Biologie dentaire.

Pour tout renseignement, prière de s'adresser à la Faculté.

L'université de la Saskatchewan ouvrira une faculté dentaire cet automne

Le doyen K. J. Paynter a annoncé que la Faculté dentaire de l'Université de la Saskatchewan admettra ses premiers étudiants cet automne. La première classe prédentaire aura environ 10 étudiants. Eventuellement la faculté acceptera un total de 150 étudiants.

Le Dr Paynter a dit que le programme d'études dentaires comprendra une année d'internat dentaire, sans doute la première dans le monde. Le cours de six ans se compose d'une année d'études prédentaires, de deux ans de préclinique, de deux ans de clinique et d'un an d'internat.

La faculté se trouve sur le campus de Saskatoon de l'Université de la Saskatchewan. Les premiers cours seront donnés à la Faculté de médecine. Eventuellement, la faculté s'installera dans les annexes de la Faculté de médecine et de l'hôpital uni-

versitaire qui vont être construits sous peu.

Le Dr Paynter a déclaré que le nouvel internat sera plus qu'une simple expérience de pratique dentaire: "nous espérons qu'il élargira l'horizon de nos étudiants. Ils pourraient, par exemple, en passer une partie dans les cliniques de santé publique où ils auront l'occasion d'apprécier l'ampleur du problème dentaire et de voir quel rôle la santé buccale joue dans la santé générale. Des internats passés en partie dans des domaines apparentés à la dentisterie pourraient profiter grandement aux étudiants comme au public."

Le Dr Paynter a dit que le programme était conçu de façon à cadrer avec le nouveau programme médical qui entrera en vigueur à Saskatoon, cet automne. Ses étudiants en médecine et en dentisterie suivront ensemble un certain nombre de cours élémentaires de sciences et utiliseront les mêmes installations pour les cours et les études cliniques. L'Université formera des dentistes, des hygiénistes dentaires et donnera des cours au niveau postgradué.

Économie

L'ADC et les représentants d'Ottawa étudient les tarifs pour les Indiens et les Esquimaux

Un porte-parole du Gouvernement fédéral a déclaré, le 18 mars, aux représentants de l'ADC que l'échelle des tarifs d'Ottawa, pour les services rendus aux Indiens et aux Esquimaux, bien qu'inférieure aux tarifs du bien-être social de certaines provinces, est en fait supérieure aux tarifs d'autres provinces. On a demandé au docteur W. P. Mickelson, adjoint du chef des traitements du Ministère de la santé publique et du Bien-être social, d'encourager son ministère à appliquer les échelles de tarifs provinciales pour le paiement de ces services.

Le Dr Mickelson a expliqué que les directeurs régionaux de la santé de son ministère sont responsables des budgets de

santé publique, dans leurs districts. Ils allouent les fonds suivant les besoins et les disponibilités. Le porte-parole fédéral a aussi insisté sur le fait qu'Ottawa n'a aucune responsabilité constitutionnelle en ce qui concerne les services de santé, pour les Indiens et les Esquimaux.

Il a suggéré que les associations dentaires provinciales (1) encouragent leurs gouvernements provinciaux respectifs à améliorer et étendre les services provinciaux du bien-être social, de façon à couvrir également les Indiens et les Esquimaux et (2) travaillent en collaboration avec les directeurs régionaux du Ministère de la santé et du Bien-être social, afin d'obtenir une portion équitable des fonds disponibles pour les services de santé.

Le Ministère des anciens combattants adopte les barèmes d'honoraires provinciaux

Le Dr D. M. Tanner, directeur des services dentaires du Ministère des anciens combattants a annoncé que son département appliquera dorénavant les barèmes d'honoraires de l'Association dentaire provinciale, lorsqu'il remboursera des dentistes indépendants pour des soins rendus à des anciens combattants. Le Dr Tanner a déclaré que le Ministère des affaires des anciens combattants commencera à payer 90 pour cent des honoraires indiqués dans les barèmes provinciaux, à partir du 1er juillet.

Le mécontentement créé par les honoraires payés par différentes agences du gouvernement fédéral a été la cause de la résolution suivante, adoptée l'année dernière par le Conseil des gouverneurs de l'ADC. "Qu'il soit résolu que l'Association dentaire canadienne demande au gouvernement fédéral de payer pour tous les services dentaires conformément aux barèmes d'honoraires provinciaux". La décision annoncée par le Ministère des anciens combattants est le résultat.

Le Ministère des anciens combattants dirige 18 cliniques au Canada. Les patients qui habitent à proximité de ces cliniques sont tenus de s'y faire traiter. Ailleurs, les patients peuvent choisir leur dentiste.

Le Dr Tanner a expliqué que tous les anciens combattants n'avaient pas le droit de recevoir des traitements dentaires aux frais du département. Sont éligibles seulement les bénéficiaires d'une pension pour dommages dentaires subits en service, ceux pour lesquels le département considère que les soins dentaires font partie intégrante du traitement de leur invalidité; ceux qui ont subi l'amputation d'un bras, d'une main ou son équivalent; les anciens combattants qui reçoivent une pension d'invalidité par suite de guerre; tous les anciens combattants en traitement dans un hôpital du Ministère par suite de leur invalidité et les anciens combattants qui reçoivent des soins à domicile. Ces bénéficiaires sont éligibles à différents degrés d'après les règlements de traitements des anciens combattants et ils ont droit à différents niveaux de soins, suivant leur éligibilité.

L'éligibilité d'un ancien combattant doit être établie avant qu'un dentiste indépendant commence le traitement, a déclaré le Dr Tanner. "Il est, par conséquent, essentiel que le traitement recommandé, exception faite d'un traitement d'urgence, soit évalué par un dentiste attaché au Ministère. Il peut arriver que les recommandations du dentiste privé soient alors modifiées, a-t-il expliqué. Lorsque le traitement est terminé, il faut à nouveau que le dentiste du Ministère vérifie les honoraires et les déclare conformes aux tarifs du département pour que les responsables du Trésor puissent accepter le compte.

Programme d'assistance dentaire pour Toronto

En février dernier, Toronto métropolitain a approuvé un programme d'assistance dentaire pour les bénéficiaires du Bien-être social. Pour la 1ère année, on a estimé le coût de ce programme, qui entrera en vigueur le 1er avril, à \$432,000, dont Metro Toronto paiera \$209,952, la province de l'Ontario défrayant le reste. Ce programme devrait couvrir environ 30,000 bénéficiaires du bien-être social dont 12,000 environ recevront vraisemblablement des services dentaires, à un coût moyen de \$36 par patient, par année. Ce sont des dentistes qui fourniront ces

services conformément à un accord négocié entre le Welfare Department et le Royal College of Dental Surgeons de l'Ontario. Ce programme sera réétudié après une période d'essai de six mois. Il couvrira les services suivants: examens et radiographies bite-wing \$6; extractions — une dent \$8, chaque dent supplémentaire \$4; obturation à la porcelaine synthétique \$10; obturation à l'amalgame d'argent \$7-\$20; prophylaxie \$7; protection de la pulpe et couronne temporaire pour une dent incisive fracturée \$16.

Medicare inaugure la co-assurance en Saskatchewan

Les résidents de la Saskatchewan qui s'adressent à des médecins pour des traitements médicaux doivent payer maintenant une partie des honoraires. C'est le 1er avril que le gouvernement provincial a inauguré cette nouvelle ligne de conduite dont on parlait depuis plusieurs mois.

D'après le *Journal de l'Association médicale canadienne*, la profession médicale, de la Saskatchewan, est d'avis depuis longtemps que les patients doivent participer au paiement des services des médecins. L'Association médicale canadienne partage cette opinion. Le rapport annuel de 1967 du régime d'assurance médicale de la Saskatchewan indique que le volume des prestations a augmenté de 6,7 pour cent depuis 1966, alors que le nombre des médecins traitants n'a augmenté que de 3 pour cent.

La clinique de prothèse du Manitoba annonce une augmentation

Plus de patients se sont rendus à la clinique de prothèse du Manitoba, l'année dernière qu'au cours de toute autre année depuis son inauguration, en 1960. Un porte-parole de la clinique a déclaré que 8,305 patients ont fréquenté la clinique en 1967, soit une augmentation de 33 pour cent sur les 6,229 visites enregistrées pour 1966. 4,855 patients ont reçu des dentiers supérieurs et inférieurs et 508, un seul dentier.

La clinique de prothèse du Manitoba est une institution, sans but commercial,

établie par la Manitoba Dental Association. La clinique demande \$85 pour un dentier complet, inférieur et supérieur.

Le prix des soins dentaires aux E.U. augmente

Le coût de la vie aux Etats-Unis a augmenté de trois-dixièmes d'un pour cent, en janvier. C'est la quatrième augmentation en quatre mois avec les prix des denrées alimentaires et les honoraires médicaux en tête. Les aliments, dont les prix demeurent généralement stables en janvier, ont augmenté de huit-dixièmes d'un pour cent d'après le ministère du travail des E.U. Les honoraires des médecins et des dentistes, qui ont subi l'augmentation la plus rapide depuis plusieurs années, d'après l'index américain des prix aux consommateurs, ont augmenté de sept-dixièmes d'un pour cent.

Fluoration

La fluoration encouragée en Colombie britannique

Les ministères de l'éducation et de la santé de la Colombie britannique ont approuvé conjointement la fluoration de l'eau, pour prévenir les caries dentaires. "La fluoration de l'eau est l'une des mesures de santé publique les plus efficaces à l'heure actuelle", d'après une déclaration de principe envoyée le 4 mars, à toutes les commissions scolaires, les surintendants des écoles et les écoles de la Colombie britannique. "Elle s'est montrée sûre, pratique et ses effets durent pour la vie. On n'a pas encore trouvé de meilleure méthode de prévenir les caries dentaires, et la communauté toute entière en bénéficie."

C'est le ministère de l'éducation qui a envoyé cette déclaration conjointe; la première au Canada, semble-t-il. Elle était signée par M. F.P. Levirs, surintendant provincial de l'éducation. M. Levirs a demandé instamment au personnel des départements de santé locaux et des commissions scolaires d'"entreprendre des programmes éducatifs sur ce sujet dans

les écoles de la Colombie britannique . . .” D’après une circulaire du ministère, les départements de santé locaux fourniront de la documentation à l’usage des instituteurs et des élèves.

Un nouveau vote sur la fluoration à Hamilton, en décembre

Il y aura un autre plébiscite sur la fluoration à Hamilton, Ontario, le 4 décembre, à la suite d’une pétition signée par 18,333 personnes qu’ont présentée, au Board of Control de la ville, les adversaires de cette mesure de santé publique. Les signatures de la pétition représentaient 10 pour cent des votes nécessaires pour imposer un nouveau plébiscite.

Après des débats orageux, la population s’était décidée en faveur de la fluoration à une très faible majorité, au moment des élections municipales de 1966. L’eau de la ville est fluorée depuis le 23 octobre 1967.

Les hygiénistes approuvent la fluoration

L’Association canadienne des hygiénistes dentaires s’est déclarée très fortement en faveur de la fluoration. “Dans une localité, la fluoration de l’eau est la mesure la plus logique à prendre pour prévenir . . . les caries dentaires”, d’après une déclaration de principe faite récemment par l’ACHD, qui recommande aux localités de régler la teneur en fluorure de leur eau de façon à assurer une prévention maximum de la carie dentaire.

Santé publique

La santé dentaire de la Colombie britannique s’améliore

Moins de caries dentaires, moins d’enfants laissés sans soin, et plus d’enfants qui n’ont pas besoin de soins dentaires; ce sont là les trois faits importants qui se dégagent de deux enquêtes au cours desquelles près de 10,000 enfants ont été examinés dans toute la Colombie britan-

nique, au cours des derniers 10 ans.

Dans le rapport annuel 1967 du service de santé de la Colombie britannique, le directeur provincial de la section dentaire, le Dr Frank McCombie rapporte que le taux moyen de carie des dents permanentes est tombé de 6.0 dents DMF par enfants à 5.5; le pourcentage d’enfants dont toutes les caries ont été traitées est passé de 16.8 à 22.8 et il y a eu une augmentation importante du pourcentage d’enfants qui n’avaient pas besoin de traitement dentaire, au moment de l’examen.

Toutefois, 26 pour cent des enfants souffraient de gingivite et 29 pour cent de malocclusion sérieuse et défigurante. Moins d’un pour cent des enfants examinés recevaient un traitement orthodontique.

Un enfant de Colombie britannique qui atteint l’âge de 15 ans a eu, en moyenne, 11 dents permanentes cariées. Par contre, des enfants vivant dans une localité dont l’eau est fluorée ont eu moins de 5 dents cariées à l’âge de 15 ans. L’eau fluorée a également un effet sur les adultes jusqu’à au moins 45 ans. Ils ont 60 pour cent moins de caries que les personnes qui vivent dans des régions où l’eau n’est pas fluorée.

Recherche

Un dentiste des E.-U. chef du service médical Banting et Best à Toronto

Le Dr I. B. Fritz, dentiste et physiologue, a été nommé directeur du Service de recherche médicale Banting et Best à l’Université de Toronto. Il succède au Dr C. H. Best qui a pris sa retraite, en juin dernier. Le Dr Fritz est le troisième directeur du service portant le nom des chercheurs qui ont découvert l’insuline. C’est le regretté Sir Frédérick Banting qui en a été le fondateur et le premier directeur.

Le Dr Fritz qui prendra son poste comme chef du service et professeur de physiologie le 1er juillet, est professeur de physiologie à l’Université du Michigan, Ann Arbor.

La dextranase réduit les caries chez les hamsters

Les chercheurs du US National Institute of Dental Research ont découvert qu'en ajoutant de la dextranase à l'eau potable, on réduisait l'incidence de plaque bactérienne et de carie chez les hamsters infectés avec des streptocoques, et soumis à un régime alimentaire cariogène.

Les streptocoques producteurs de dextrane sont la principale bactérie que l'on ait identifiée comme favorisant les caries des surfaces lisses et c'est la dextrane qui semble être principalement responsable de l'adhésion de la plaque bactérienne. Ceci nous a incité à voir, si en attaquant la dextrane, on pourrait réduire la plaque bactérienne et les caries. Pour décomposer la dextrane, on a extrait la dextranase du pénicillium funiculosum.

Les caries des surfaces lisses représentent plus de 50 pour cent des caries chez les enfants de 6 à 18 ans. Ces caries se développent sous la plaque microbienne par suite de l'activité métabolique des bactéries qui y sont rassemblées. Les scientifiques se sont donc demandés si en éliminant la dextrane qui est responsable des propriétés adhésives de la plaque bactérienne, on pourrait prévenir les caries de ce genre. En même temps, puisque l'on attaquerait un produit métabolique plutôt que la cause elle-même, ce genre de thérapeutique n'affecterait pas l'équilibre écologique de la microflore buccale.

Dix-neuf hamsters ont participé à cette expérience. Ils ont tous été mis à un régime cariogène. Tous, sauf deux, ont été infectés avec des streptocoques cariogènes producteurs de dextrane. La formation de la plaque microbienne et des caries a été arrêtée ou empêchée chez les sept animaux dont la nourriture et l'eau contenaient de la dextranase, alors que la plaque microbienne et les caries ont augmenté considérablement chez les dix animaux, qui ne recevaient pas de dextranase. Les deux hamsters qui n'avaient pas été infectés avec les streptocoques n'ont pas développé de caries, ce qui met en évidence le rôle essentiel de l'infection bactérienne dans la plupart des caries dentaires.

Le concept de la formation de la plaque microbienne n'est pas nouveau en dentis-

terie. Ce n'est pourtant que récemment que les scientifiques ont découvert que les bactéries productrices de dextrane étaient responsables des caries.

Une nouvelle technique produit des alliages or-nickel avec renforcement de fibres

Des recherches métallurgiques récentes faites au Polytechnic Institute of Brooklyn, à New York ont permis de découvrir une nouvelle technique pour produire des alliages avec renforcement de fibres. Cette découverte a été publiée dans le numéro du 3 février de *Nature*.

On a découvert cette nouvelle technique en étudiant des alliages or-nickel, dans lesquelles les proportions étaient soit de 30 atomes d'or pour 70 atomes de nickel, soit 50 atomes pour chacun des deux métaux. A des températures de près de 900°C., ces alliages sont solides et les atomes de nickel et d'or sont distribués plus ou moins au hasard sur leur grille de crystal. A des températures plus basses, entre 450° et 750°C., l'alliage passe par deux phases, l'une pendant laquelle il se compose surtout de nickel et l'autre pendant laquelle l'or prédomine. Aux températures les plus hautes auxquelles se produit cette dissociation en deux phases, la phase nickel apparaît sous la forme de paquets de fibres parallèles dans une matrice d'or. Ces fibres renforcent considérablement l'alliage, les fibres elles-mêmes étant très résistantes.

Ces travaux sont importants parce qu'ils fournissent une méthode pour la fabrication d'alliages avec renforcement de fibres en évitant d'avoir à préparer d'abord les fibres résistantes et de les faire solidifier ensuite dans le matériau de la matrice. Il n'existe qu'une autre technique directe pour la préparation des alliages avec renforcement de fibres: la solidification unidirectionnelle des alliages d'une composition eutectique. Ce procédé n'a qu'une valeur limitée car il ne peut être appliqué qu'à une gamme très restreinte d'alliages.

Les alliages d'or et nickel sont étudiés à Brooklyn à cause de leurs applications importantes en dentisterie et en chirurgie. Cette nouvelle découverte en permettra une utilisation plus extensive dans ces domaines.

dentistry in the news

National Convention

Childrens Dentistry Breakfast Advanced

The breakfast meeting of the National Executive, Canadian Society of Dentistry for Children, has been advanced from Saturday, June 29 to Thursday, June 27. The meeting will be held at 7.30 a.m. in the Kent Room of the Hotel Georgia, Vancouver.

Royal College Convocation Set for Vancouver

The 1968 convocation of the Royal College of Dentists of Canada will be held on Saturday afternoon, June 29, in the new Music Theatre of the University of British Columbia at Vancouver. There will be a President's Dinner for all fellows, fellows-elect and their wives on Friday evening, June 28.

CDA TV Network at Vancouver

This year, for the first time, the Canadian Dental Association will operate its own closed circuit television network at the national convention. Programs will be televised directly into rooms of the Vancouver Hilton Hotel. Included will be a video-tape of the Board of Governors annual meeting, scientific films, interviews with national and international figures, world news, weather and conven-

tion news. A detailed TV schedule will be distributed at the national convention. Sponsors of the program will be the Procter & Gamble Company of Canada Limited

The Association

Children's Dental Plan in Final Stage

The task force charged with preparation of the Canadian Dental Association's dental health plan for children met at Association headquarters April 24 to review the fourth draft of the proposed plan. Also considered were some of the collateral studies commissioned in connection with the children's program. The task force authorized the preparation of its final report which will be transmitted to the Board of Governors at Vancouver in June

The proposed children's dental plan will be studied by a 'Committee of the Whole' of the Board of Governors at 10.00 a.m. on June 24. Three members of the task force will also describe the plan to convention delegates at 3.30 p.m. on June 28. This panel will be led by CDA President W. P. Munsie who will give a keynote address. Other panel members will be President-elect Henri Brouillet and W. J. Spence, a member of the CDA Executive Council.

CDA, CMA Officials Meet

Senior officers of the Canadian Dental Association and Canadian Medical Association held a joint meeting April 18 for the first time in the history of the two associations. Mutual problems were considered during the joint session held at CDA headquarters. The meeting was held in response to an invitation from former CMA President R. K. Thomson that the two associations establish closer liaison.

Representing the CDA were W. P. Munsie, Vancouver, president; Henri Brouillet, Montreal, president-elect; J. P. Coupland, Ottawa, past president; and W.



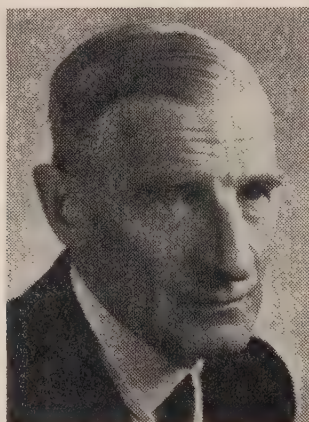
Officials of the Canadian Medical and Dental Associations met at CDA Headquarters April 18 to discuss mutual problems. Seated around the conference table (l. to r.) are R. D. Atkinson, chairman of the CMA General Council and Executive Committee; N. J. Belliveau, CMA president; W. P. Munsie, CDA president; R. K. Thomson, CMA past president; and J. P. Coupland, CDA past president. Standing in the rear are W. G. McIntosh, CDA secretary; A. F. W. Peart, CMA general secretary; and Henri Brouillet, CDA president-elect.

G. McIntosh, secretary. CMA representatives included N. J. Belliveau, Montreal, president; R. K. Thomson, Edmonton, past president; R. D. Atkinson, Waterloo, Ontario, chairman of the CMA General Council and Executive Committee; and A. F. W. Peart, Toronto, general secretary.

The participants agreed to hold a further meeting in the fall.

Dr. Felix French Dies at 86

F. A. French



Dr. Felix A. French of Ottawa died May 8 at the age of 86. He was internationally noted for his pioneering work in prosthodontics.

Born in Renfrew, Ontario, April 7, 1882,

Dr. French attended the Royal College of Dental Surgeons of Ontario where he earned a DDS degree in 1906. After graduation Dr. French returned to Renfrew where he practised for the next five years. He moved to Edmonton in 1911, practising there until 1922. During this period he became a member of the Board of Directors of the Alberta Dental Association. In 1922 Dr. French returned to eastern Canada to open a practice in Ottawa. He continued to practise in the nation's capital until his retirement in 1957.

Dr. French was a contributing editor of the *Journal of Prosthetic Dentistry*. He was also a member of the (US) National Society of Denture Prosthetics, a life member of the (US) Academy of Denture Prosthetics, a fellow of the American College of Dentists and an honorary life member of the Royal College of Dental Surgeons of Ontario.

At the outbreak of World War II, Dr. French served as one of three Canadian Dental Association advisers to the Minister of National Defence. The group was responsible for activating the Canadian Dental Corps.

In tribute to his many contributions to dentistry, the CDA conferred on him its highest honour — honorary membership — at the national convention in 1960.

Announce New Staff Appointment

A. G. Zayachkowski



Secretary W. G. McIntosh has announced the appointment of Mr. Alexander G. Zayachkowski as CDA accountant. Mr. Zayachkowski replaces Mrs. Isabel (John) Turner who has moved to Kingston, Ontario, where her husband recently opened a dental practice.

Prior to joining the CDA staff, Mr. Zayachkowski was assistant comptroller for Reeves Hardifoam Ltd., a Toronto manufacturer of flexible urethane foam. Other previous employment included positions with the Canadian Imperial Bank of Commerce and the Canada Metal Company.

Agency to Co-ordinate Physician Licensure

Provincial medical licensing bodies have formed a federation to work out national uniform requirements for licensing physicians.

The Federation of Provincial Medical Licensing Authorities of Canada will act as a clearing house for the opinions and policies of the provincial bodies, according to J. C. C. Dawson, the organization's vice chairman. Dr. Dawson is registrar of the College of Physicians and Surgeons of Ontario.

Provincial requirements for enabling certificates to write Medical Council of Canada examinations vary widely at present. The studies commissioned by the Federation may lead to a tightening of regulations by the more permissive provinces and a modifying of them by the more restrictive. The ultimate result may be the admission to Canada of more foreign medical graduates. The aim, according to Dr. Dawson, is to select the worthwhile candidate regardless of the school he comes from, while reaching agreement on the further training or retraining he needs.

Canada and the Provinces

Nine Dentists Pass Royal College Interim Exam

Nine dentists from all parts of Canada successfully passed the initial interim fellowship examination conducted by the Royal College of Dentists of Canada on March 30. They will be inducted as fellows of the Royal College at a convocation ceremony June 29 in Vancouver. The new fellows-elect are:

Oral Surgery: A. J. Wilson, Windsor, Ont.

Orthodontics: M. G. Badner, Toronto; P. Bokstrom, Vancouver; J. G. Dale, Toronto; R. M. Hamilton, Oakville, Ont.; H. J. Levitt, Montreal; and T. E. Spracklin, Halifax.

Periodontics: M. A. Listgarten, Toronto and H. L. Samuels, Edmonton.

Dental X-rays Termed Safe

Radiology is an essential part of modern dentistry and the dentist's training and x-ray equipment are the patient's assurance that he will not be exposed to radiation hazards.

This is the word from two of Canada's top experts in dental radiology. H. G. Poyton, professor and head of the radiology department at the University of Toronto's Faculty of Dentistry, and D. W. Stoneman, head of the dental radiology division at the University of Western Ontario, were commenting May 13 at the Ontario Dental Association convention in Toronto.

The dental profession, they said, is concerned that misconceptions about radiation may deter parents from having their children's teeth adequately attended to.

"If dental radiographs are taken by a properly trained person — and the den-

continued on p. 339



Canada's Narwhal postage stamp

The issue by the Canada Post Office on April 10 of a five cent postage stamp depicting the narwhal (*Monodon monoceros*) brings attention to a rare arctic mammal which is of considerable dental interest. This whale-like creature which attains a length of 13-16 feet is a delphinoid cetacean related to dolphins and porpoises. Native to our arctic seas, the narwhal was so named by the old Norsemen from *nar* (corpse), with reference to the colour of its skin, and *hval* (whale). Its dental interest lies in the prominent horn which develops only in the male and which is actually a tusk-like tooth.

The narwhal is edentulous in the mandible but has two incisors in the maxilla. In the female, both incisors attain a length of up to eight inches but remain buried in the maxilla. These teeth are of non-persistent growth. They are eventually converted to osteo-dentine. In the

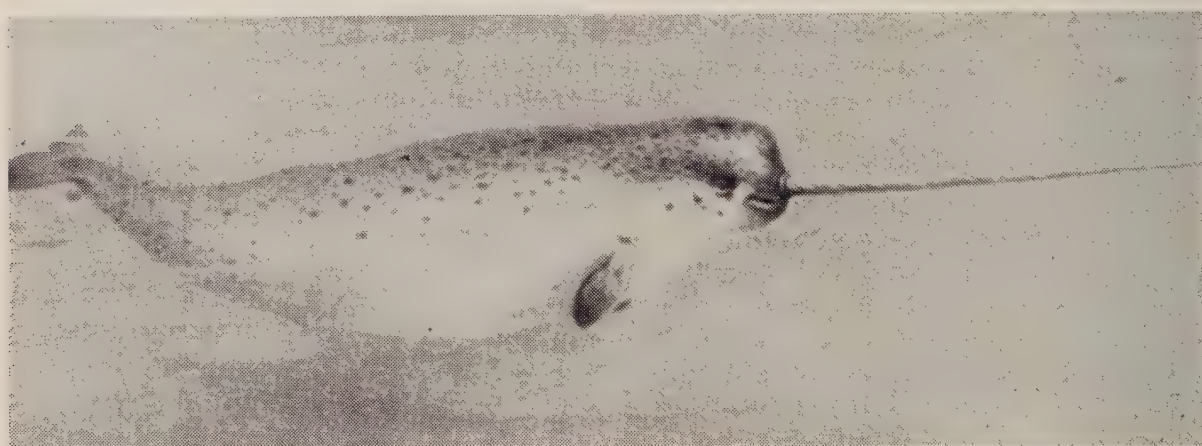
male, the right incisor remains vestigial and buried as in the female. The left incisor grows into a tusk that usually measures 5-8 feet in length but may extend to as much as 12 feet. The development of the tusk in the male illustrates sexual dimorphism of the dentition in which either hormones or sex chromosomes or both play a role.

The tusk consists of orthodentine and cementum, and has no enamel cover. This renders the weapon elastic. The tusk tapers to a blunt point and has a spiral twist which runs from right to left. Rarely, both incisors develop into tusks in the male. The purpose of the tusk is uncertain, although some authorities consider it a sexual weapon. Narwhals have never been known to charge and pierce the bottoms of ships with their weapons as do swordfish. In the young, there are two deciduous teeth, each about half an inch long, behind the permanent organs.

The fascination of this unusual tusk is augmented by the myths that surround its earliest recognition. The tusk of the narwhal is fabled as the horn of the legendary unicorn (from Latin, one horn). The depiction of this mythical animal with a single straight spiralled horn derives from the grooved spiral single tusk of the narwhal. Evidence for the presumed existence of the unicorn was based on the real existence of the narwhal's tusk.

Molluscs constitute the principal food of the narwhal. It has been claimed that these cetaceans utter a groaning sound at times.

G. H. Sperber



tist is trained to use x-rays properly — there is certainly no need to fear harm," Dr. Poyton said. He stressed that dentists use x-rays for diagnosis and not for treatment itself, that fast film reduces the exposure time to a minimum, and that modern equipment focuses the beam on an area less than three inches in diameter.

International Items

Air France Offers Package Tours to FDI Varna Session

Air France has arranged three attractive itineraries for Canadian dentists attending the 56th annual session of the Fédération Dentaire Internationale at Varna, Bulgaria, September 16-22. The tours offer a variety of pre-convention and post-convention destinations including Israel, Czechoslovakia and the Soviet Union, and France and Greece. There are special reduced prices for groups of a minimum of 15 persons travelling together. Further information may be secured from local travel agents or representatives of Air France.

Dental Practice Reciprocity in Scandinavia

New arrangements in the Scandinavian countries will enable a dentist from one country to move to another, obtain a licence as a dentist there, and practise either in private practice or as a public health dentist. The only requirement is an examination on laws concerning the dental profession in the new country.

ADA Board Moves on Dues Increase

The American Dental Association's Board of Trustees has mailed an information bulletin to the entire membership to explain the reasons for a proposed \$20 increase in ADA membership fees. The proposal will be considered at the 1968 House of Delegates session. If approved, the increase would go into effect January 1, 1969.

Reasons for the dues increase are declining income, which dropped some \$160,000 below the 1967 estimate; increased expenses, which in 1967 rose about \$622,000 over 1966; a decline in operating surplus from \$203,000 in 1966 to an estimated deficit of \$86,000 in 1968; and a substantial lack of growth in membership income. A further reason for requiring an increase in membership fees is the fact that the association may have to pay some \$500,000 annually in federal taxes for advertising, exhibit and business lease income.

US Government Proposes Sharper Policy on Reliners

The United States Food and Drug Administration on April 4 proposed a new policy on the use of denture reliner kits. The FDA noted that the American Dental Association and leading dental authorities had expressed concern about the safety of material labelled for lay use in the repairing, refitting or cushioning of ill-fitting, broken or irritating dentures. The FDA said it would regard such materials as unsafe and mis-branded unless the denture reliners, repair kits, pads, and cushions are labelled "for emergency use only, prolonged use of home-repaired or refitted dentures may cause rapid bone loss, chronic irritation, ulcerations and tumours. See your dentist promptly."

Dental Students' Group to Meet in Prague

The 15th Congress of the International Association of Dental Students will be held in Prague, Czechoslovakia, August 1-10.

The fee for attending the congress, including the entire program, food and lodging is \$60 US per person. Non-members and qualified dentists may enrol as supporting members of the association (\$3 US per year) and be eligible to participate in the congress for \$60 US.

For more information, contact Miss Jana Vesselova, secretary of the Congress Committee, Manesova 55, II Poschooi, Prague 2, Czechoslovakia.

Spanish Orthodontic Meeting Sept. 22-27

Canadian dentists have been invited to the fourteenth meeting of the Spanish Orthodontic Society at Torremolinos, Malaga, September 22-27. Treatment of Angle Class I dental and skeletal malocclusion in mixed and permanent dentitions will be the main theme. Scientific sessions will be held in the Hotel Pez Espada of Torremolinos.

For further information, please write to Antonio Fernandez-Baca Ortega, Plaza Queipo de Llano 4, Malaga, Spain.

Edwards, Belleville; A. H. Leckie, G. L. Prestien and E. J. Rajczak, Hamilton; W. G. Bruce, Kincardine; R. Michell and R. O. Winn, Kitchener; W. J. Dunn and D. J. Ferguson, London; J. P. Coupland, Ottawa; M. C. G. Bebee and D. A. Cheetham, Owen Sound; C. M. Purcell, Pembroke; R. C. Honey, Peterborough; M. V. J. Keenan, Sault Ste. Marie; A. B. Sutherland, Sudbury; J. D. Purves, H. M. Jolley, K. F. Pownall, R. E. Diprose, R. J. Godfrey, D. W. Gullett, J. E. C. McGowan, H. W. Reid, E. C. Veitch, Gordon Watson, QC and W. E. Jackson, Toronto; and T. H. Wachna, Windsor.

Dental Organizations

March 18 Dinner Marks Ontario College Centennial

Twenty-nine guests — past and present officers of the Royal College of Dental Surgeons of Ontario — attended a formal dinner at Toronto's Park Plaza Hotel March 18 to mark the hundredth anniversary of the RCDS, the world's oldest dental licensing body.

The guest speaker was the Honourable M. B. Dymond, minister of health for Ontario. Others in attendance were R. W.

Dr. Levin Elected President of Toronto Academy

Recent elections by the Toronto Academy of Dentistry resulted in the appointment of B. J. Levin as president for the 1968-69 term.

Also elected to the Academy's Executive were G. M. Marshall, past president; G. C. Stirling, president-elect; W. J. McColeman, secretary; and M. A. Kamien-ski, treasurer.

District councillors are W. S. MacKenzie and D. M. McKee, North Toronto; R. S. Anco and G. P. Smith, West Toron-

J. D. Purves, president of the Royal College of Dental Surgeons of Ontario, welcomed guests at the RCDS hundredth anniversary dinner March 18. Others in the picture are (l. to r.) K. F. Pownall, RCDS registrar-secretary-treasurer; Gordon Watson, QC; and E. C. Veitch.



to; Bernard Crystal and R. J. Hall, East Toronto; and W. L. Heaslip and R. L. Moran, Central Toronto. Mrs. R. F. Jones is executive secretary.



B. J. Levin

Montreal Club Ponders Future of Quebec Dentistry

Potential trends for organized dentistry in Quebec were outlined at a March 18 meeting of the Montreal Dental Club. Jacques Fiset, Montreal, president of the Quebec Dental Association, described current efforts to combine his organization with the Professional Association of Dental Surgeons of Quebec (formerly known as the Professional Association Syndi-

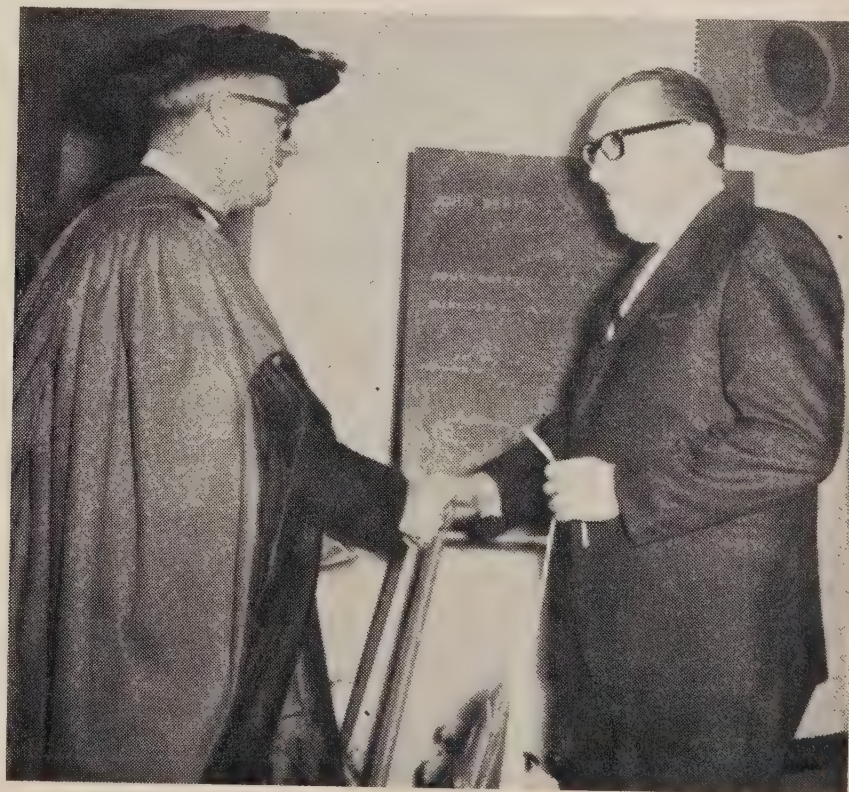
cate) into a new body representative of all practising dentists in Quebec. Lorenzo Picard, president of the College of Dental Surgeons of the Province of Quebec, announced that his executive would seek approval from the CDSPQ governors for the formation of a joint committee to study the problems of organized dentistry.

Also present at this meeting were Henri Brouillet, president-elect of the Canadian Dental Association, and Marcel Archambault, CDSPQ vice-president.

Canadian Dental Schools

Macdonald Building Opened at UBC

The University of British Columbia's dental building received the name The John Barfoot Macdonald Building in a colourful ceremony March 20 when the building was officially opened in Vancouver. Dr. Macdonald, a dentist as well as a former UBC president, played a key role in the events which preceded and coincided with the founding of British Columbia's dental school.



Honourable Wesley Black (r.), minister of health of British Columbia, congratulates J. B. Macdonald during the unveiling of a plaque at the opening of the new Macdonald Building at the University of British Columbia.



Dean S. Wah Leung (l.), dean of the Faculty of Dentistry, University of British Columbia, and D. J. Sutherland at the recent unveiling of a plaque for the Continuing Education Clinic at the UBC Dental School.

UBC Clinic Named for Dr. Sutherland

An interesting ceremony was performed at the University of British Columbia's dental building February 23 when a plaque was unveiled designating the Dr. Douglas J. Sutherland Clinic for Continuing Dental Education. The plaque, honouring one of Vancouver's leading practitioners, recognizes Dr. Sutherland's contributions in helping to establish the dental faculty.

Laval U Expects First Dental Class in 1971

A university official has announced that the Université Laval in Quebec City will accept its first dental students in 1971. Mr. L.-P. Bonneau, Laval's vice-rector, told the Société Dentaire de Québec March 21 that his university expects to graduate its first dentists by 1975.

Laval will shortly begin to recruit a dental teaching staff, Mr. Bonneau said. Prospective teachers will be encouraged to take further graduate training to fit them for their subsequent teaching assignments.

Dean Lussier Visits Congo University

Jean-Paul Lussier, dean of the Faculty of Dental Surgery, Université de Montréal, was recently invited to visit Lovanium University at Kinshasa, Democratic Re-

public of the Congo. Dr. Lussier was asked to survey the university's facilities and advise about the possibility of developing a dental department as part of Lovanium's Faculty of Medicine.

Royal Canadian Dental Corps

Eight Officers Complete Training Courses

Eight Canadian dental officers have recently completed professional training courses in the United States. They are:

Maj. **B. A. Gaudet** who took oral surgery training April 1-12 at Ent Air Force Base, Colorado Springs, Colorado;

Maj. **J. F. Begin** who enrolled in a periodontics course April 22-June 7 at the US Naval Dental School, Bethesda, Maryland;

Capt. **D. G. Jones** who also enrolled in a periodontics course April 22-26 at the US Naval Dental School;

Capt. **J. A. A. Boucher** who took a short specialty course April 29-May 3 at the US Naval Dental School;

Capt. **F. C. Arpin** who participated in a course of crown and bridge prosthodontics March 4-15 at the University of Michigan, Ann Arbor, Mich.;

Capt. **E. F. Foley** who took a complete prosthodontics course April 15-26 at the University of Michigan;

Capt. **J. W. C. Walls** who enrolled in a periodontics course April 1-12 at the University of Michigan; and

Maj. **J. F. Eadon** who participated in residency training and oral surgery March 18-May 10 at the Doctors Hospital, Toronto.

Recent Promotions and Releases

Canadian Force's Headquarters recently announced the promotion to major of Captains **G. W. Hill** of South Burnaby, BC, and **P. R. McQueen** of Moose Jaw, Sask.

Four officers have retired from the Royal Canadian Dental Corps. They are Maj. **D. R. O'Hara** and Captains **J. L. C. Giguere**, **J. E. D. Brissette** and **I. M. Hamilton**.



Lt.-Col. P. L. Rondeau, Vancouver, is militia dental adviser for the Pacific Region. He serves with the Vancouver Service Battalion.

Economics

Ontario Association Unveils Children's Care Plan

The Ontario Dental Association has approved a plan to provide dental care for

all Ontario children beginning at age three. The plan, which would be financed with public funds and premiums based on family income, was described at the 101st annual ODA convention in Toronto May 13-15.

An immediate comprehensive program for all children is impossible, says the ODA report, but the plan could begin with three year olds and follow with each new group of three year olds until they are 18 years of age.

The plan calls for all dental services necessary to prevent disease, intercept malocclusion and restore and maintain oral health. It stresses maintenance care for all children in the program, adding that such care takes only half as much time as initial treatment.

Along with the provision of dental care there would be an intensive preventive program, including fluoridation of public water supplies.

Wherever possible treatment would be by dentists in private practice and payment would be on a fee-for-service basis. The plan would include services of general practitioners and specialists.

The plan would provide full reimbursement for all examinations, diagnostic procedures and certain treatments such as those for handicapping abnormalities. Parents would pay their dentists according to existing fee schedules and then be reimbursed, or the dentist would bill directly and then assess the patient for the amount not reimbursed by the plan.

The ODA also proposes the formation of a corps of salaried dentists to provide care in under-serviced areas of Ontario. They would use mobile clinics in more remote areas as well as fixed clinics in schools, outpost hospitals and police posts.

Corps dentists would be on a salary basis only, the salary to be equivalent to, or higher than, the provincial average for dentists, the report states.

"Encouragement to enter the corps must begin early in the undergraduate years," the report declares. "Graduate dentists would also be eligible to apply on a full-time basis."

The ODA also calls for the training of more dentists and auxiliary personnel. "Encouragement should be given for the

increased use of auxiliaries for services not requiring special knowledge and skill of the dentists," says the report.

Saskatchewan College Backs Preventive Plan for Children

The College of Dental Surgeons of Saskatchewan has advanced a preventive and dental health care plan for all children beginning at age three. Cost of the program, estimated at \$78,459 (\$84 per child) in the first year, would be shared by provincial and federal governments.

The plan was prepared by Regina dentists C. N. Bolen, R. O. Brett and F. T. Wihak, members of a former joint CDSS-Saskatchewan Government Committee formed to explore the province's dental needs and the role of dental auxiliaries.

The plan's central feature is a three-phase preventive program beginning with three to six year olds and progressing annually until all children in the province are covered up to age 18.

In phase 1 a dental hygienist would survey and give dental caries ratings to all eligible children in school units. Children who require treatment would be referred to family dentists.

In phase 2 children with rampant caries would be recalled for further investigation by a dental hygienist and nutritionist. The youngsters would be given a salivary swab test for caries activity, a haemoglobin test, urinalysis and dietary analysis. Children with abnormal findings would be referred to family physicians.

The final phase would consist of topical application of anticariogenic solutions for all eligible children.

The College urged that the dental division of the provincial health department be raised to the status of a dental health branch. The dental director should be directly responsible to the deputy health minister for all government-sponsored dental programs including the three preventive phases of the proposed children's program.

The College reiterated its opposition to the introduction of New Zealand type dental nurses and to programs that emphasize treatment at the expense of pre-

ventive measures. Treatment should be given by licensed dentists aided by auxiliaries as presently constituted in Canada and trained to assist the dentist in every possible manner short of cutting or extracting teeth, says the report. It also pledges the College's cooperation in training dentists to use and employ more auxiliaries in private practice, promoting preventive measures in dental practice, recruiting and assisting dental students, training dental hygienists and dental assistants, servicing remote areas, and promoting prepaid dental care.

Public Health

BC Dental Health Improves

Less tooth decay, fewer untreated children, and more children who require no dental care at all are the three significant facts that emerge from two surveys of nearly 10,000 children examined in all parts of British Columbia during the past 10 years.

Writing in the 1967 annual report of the BC Health Branch, provincial dental director Frank McCombie reports that the average decay rate of permanent teeth was reduced from 6.0 DMF teeth per child to 5.5; the percentage of children with no untreated decayed teeth rose from 16.8 to 22.8; and there was a significant increase in the percentage of children who required no dental treatment at the time of examination.

Nevertheless, 26 per cent of the children had gingivitis and 29 per cent showed severe and disfiguring malocclusion. Less than 1 per cent examined were receiving orthodontic treatment.

When a BC child reaches the age of 15 he has an average of 11 permanent teeth attacked by decay. This compares with children living in a community with fluoridated water where a 15 year old has less than five carious teeth. Adults up to at least 45 years of age also benefit from fluoride-sufficient water. They have 60 per cent less decay than those living in fluoride-deficient areas.

Fluoridation

Toronto Fluoridation: "Unmistakable Evidence of Substantial Benefits"

Fluoridation of Toronto's drinking water, which began in September 1963, has brought marked improvement to the dental health of five year olds, the group which has had fluoridated water since birth. The disclosure was made May 15 by Toronto's dental director, H. S. Grey. "We have unmistakable evidence of substantial benefits, especially in five year olds," Dr. Grey said.

Subsidies Boost Fluoridation in Quebec

More than half a million Quebecers now drink fluoridated water, according to information issued by the provincial health department. Eight municipalities began to fluoridate in 1967 and 25 others, including Quebec City, are expected to fluoridate in 1968 by decision of their municipal councils.

The recent increase results from a system of subsidies begun last year which assists the municipalities to install fluoridation equipment. Those which seek this aid must fulfil the following three conditions: (1) the municipal council must vote in favour of fluoridation; (2) the council must pass a second resolution requesting a subsidy; and (3) the council must obtain health department authorization to purchase and install necessary fluoridation equipment.

A total of \$50,000 has been given to 10 municipalities since the program started, and requests for aid have come from another 20 municipalities.

New Fluoridation Vote in Hamilton This December

Hamilton, Ontario, is to have another fluoridation plebiscite on December 4. This results from a petition with 18,333 names which opponents of the public health measure recently presented to the city's Board of Control. The petition con-

tained 10 per cent of the eligible votes needed to force another plebiscite.

The hotly contested fluoride issue was decided at the 1966 municipal election by a narrow margin in favour of fluoridation. The city's water has been fluoridated since October 23, 1967.

Hygienists Endorse Fluoridation

The Canadian Dental Hygienists Association has come out strongly in favour of fluoridation of public water supplies. "Water fluoridation on a community basis is the most logical approach in the prevention of . . . dental caries," says a recent CDHA policy statement which urges communities with a public water supply to adjust the fluoride content for a maximum prevention of tooth decay.

Awards and Honours

Five Vancouver dentists were recently named life members of the Vancouver and District Dental Society. They are **E. F. Allen, J. S. Baxter, R. F. Butler, L. F. Marshall** and **G. A. C. Walley**.

The Canadian Centennial Medal, conferred in recognition of valuable service to the nation, has been awarded to **M. H. Garvin** of Winnipeg. Dr. Garvin is a past president (1929-30) and an honorary member of the Canadian Dental Association. He was also a former editor of the *Journal of the Canadian Dental Association*.

Yorkton Junior High School is to be renamed the Dr. Brass Junior High School in honour of **James Brass** who practised dentistry in Yorkton, Sask., from 1913 until his death in 1949.

Dr. Brass was born in Ontario in 1881. He studied dentistry in Chicago, graduating in 1907. He then established a practice in Hanley, Sask., where he served as mayor for two years. Moving to Yorkton in 1913, Dr. Brass was elected to the Collegiate Board in 1921 on which he served for 27 years, 23 of them as chairman. He

was also active on the Council of the College of Dental Surgeons of Saskatchewan.

Dr. Brass was the father of George Brass who is on the staff of the Faculty of Dentistry at the University of Manitoba.

Special recognition was accorded April 6 to three long-time members of the College of Dental Surgeons of Saskatchewan.

L. D. Haselton of Saskatoon, a past president of the Western Canada Dental Society and a fellow of the American College of Dentists, was honoured as a 40 year member of the Saskatchewan college.

M. Robertson of Indian Head was awarded a certificate of honorary life membership in recognition of 50 years continuous membership.

W. R. Watchler of Yorkton, another past president of the Saskatchewan college, also received a 50 year life membership certificate. Dr. Watchler died on May 13.

Ontario Health Minister **M. B. Dymond** was elected an honorary member of the Ontario Dental Association May 14 in recognition of his "long and distinguished service to the health of the public and the dental profession."



S. A. MacGregor

The Ontario Dental Association honoured **S. A. MacGregor** May 14 for his "major role in the development of dental services for children in Ontario and other parts of North America." Dr. MacGregor started the paedodontic department at the University of Toronto's Faculty of Dentistry and headed it for 20 years until last July.

He also helped to establish a dental department in the Toronto Hospital for Sick Children and headed it from 1951 to 1963. For 16 years Dr. MacGregor was chairman of the dental committee of the Ontario Junior Red Cross. He also served on the Crippled Children's Committee of the Ontario Medical Association and on the medical advisory board of the Canadian Haemophilia Association. Last July Dr. MacGregor received the Centennial Medal "in recognition of valuable service to the nation ... as a pioneer of dentistry for children in Canada."

A. W. Lindsay of Toronto, a former editor of the *Journal of the Ontario Dental Association*, was elected an honorary life member of the Ontario Dental Association May 15.

Deaths

Casselman, Kenneth Burritt. 75. Vancouver and Montreal. North Pacific College, University of Oregon, 1918. 8-4-68. Survived by Clara (wife); Dr. Bruce (son); and Ian and Kenneth (grandsons).

Claman, Ben Hurd. 61. Winnipeg. University of Minnesota, 1929. 5-4-68. Survived by Tess (wife) and Dr. Sheldon and Dr. Ussher (sons).

Fisher, Edward MacKenzie. 64. Huntsville, Ont. Royal College of Dental Surgeons of Ontario, 1927. 27-4-68.

French, Felix Andrew. 86. Ottawa. Royal College of Dental Surgeons of Ontario, 1906. 8-5-68. Honorary member CDA. Survived by Martha (wife); John F., Felix, Jr., Rev. Frank I. and Patrick (sons); Mrs. George McNamara and Mrs. L. Rohr (daughters); and 12 grandchildren.

Ratner, Michael. 68. Montreal. McGill University, 1921. 21-4-68. Survived by Eva (wife); Dr. Jack (son); and Maxine and Robert (grandchildren).

Watchler, Wesley R. 75. Yorkton, Sask. University of Minnesota, 1918. 13-5-68.

Additions • Acquisitions

- AMERICAN INSTITUTE OF ORAL BIOLOGY. 23rd annual meeting, October 21-25, 1966, Palm Springs, California, San Francisco, 1966. 239 p.
- BELL, B. H. and GRAINGER, D.A. Basic operative dentistry procedure. Boston, Tufts University, School of Dental Medicine, 1966. 289 p. illus. \$15.
- BEVELANDER, G. Atlas of oral histology and embryology. Philadelphia, Lea & Febiger, 1967. 242 p. illus. \$10.75.
- CHILTON, N. W. Design and analysis in dental and oral research. Toronto, J. B. Lippincott Co., 1967. 365 p. \$16.50.
- COLLINS, V. J. Principles of anesthesiology. Philadelphia, Lea & Febiger, 1966. 1175 p. illus. \$38.50.
- DICKSON, G. C. and WHEATLY, A. E. An atlas of removable orthodontic appliances. Toronto, Sir Isaac Pitman (Canada) Ltd., 1965. 133 p. illus. \$3.30.
- DRUGS OF CHOICE, 1968-1969. Edited by W. Modell. St. Louis, Mosby, 1968. 907 p. \$19.20.
- GAUNT, W. A., SOBORN, J. W. and TEN CATE, A. R. Advances in dental histology. Handbook No. 6. Bristol, John Wright & Sons Ltd., 1967. 104 p. illus. \$3.50.
- GILMORE, H. W. Textbook of operative dentistry. St. Louis, Mosby, 1967. 695 p. illus. \$18.10
- GLAUSER, R. O. Preventive orthodontics and limited treatment procedures; manual. Washington, US Division of Indian Health, 1967. 64 p.
- GREEP, R. O. Histology. Ed. 2. Toronto, McGraw-Hill, 1966. 914 p. illus. \$24.50.
- KOCH, G. Effect of sodium fluoride in dentifrice and mouthwash on incidence of dental caries in schoolchildren. (Odontologisk Revy, Vol. 18, Suppl. 12, 1967) 125 p. illus.
- KORNFELD, M. Mouth rehabilitation; clinical and laboratory procedures. 2 vols. St. Louis, Mosby, 1967. Pages 1-294-619. \$58.90
- PERMAR, D. Oral embryology and microscopic anatomy. Ed. 4. Philadelphia, Lea & Febiger, 1967. 168 p. illus. \$7.
- PETERSON, S. and WINNETT, W. B. Review and test manual for dental assistants. St. Louis, Mosby, 1967. 152 p. \$5.35.
- RANKOW, R. M. An atlas of surgery of the face, mouth, and neck. Philadelphia, Saunders, 1968. 292 p. illus. \$27.
- SCOTT, J. H. The essentials of oral anatomy. Edinburgh, Livingstone, 1967. 88 p. \$1.50.
- SHORE, N. A. and SHORE, M. F. How to test and hire for the professional office. Philadelphia, Lippincott, 1967. 186 p. \$9.50
- SISSMAN, I. History of dentistry in Pennsylvania, 1868-1968. Pennsylvania Dental Journal, Vol. 35, No. 3, 1968. 127 p. illus.
- US DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. Adhesive restorative dental materials — II. Proceedings from the 2nd Workshop held at the University of Virginia, December 8-9, 1965. Sponsored by the Bio-Materials Research Advisory Committee, and supported by the National Institute of Dental Research. Washington, US Government Printing Office, PHS No. 1494, 1966. 293 p. illus. \$1.00
- US DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. Dental services for American Indians and Alaska natives. Annual Report/Fiscal year 1967. Washington, US Government Printing Office. PHS No. 1724. 48 p. illus.

WALTER, J. B., HAMILTON, ^{Jr.} C. and ISRAEL, M. S. Principles of pathology for dents of dental surgery. London, Churchill, 1967. 437 p. illus. \$12.50.

WHITE, T. C., GARDINER, J. H. and LEIGHTON, B. C. Orthodontics for dental students. Ed. 2. London, Staples Press, 1967. 323 p. illus. \$14.95.

YEAR BOOK OF DRUG THERAPY, Series 1967-1968. Chicago, Year Book Medical Publishers, 1968. Edited by Harry Beckman. 573 p. \$11.00

WORKSHOP OF DENTAL EXAMINERS AND DENTAL EDUCATORS. Chicago, Illinois, February 3-4, 1967. Chicago, American Dental Association, 1967. 34 p. Mimeo.

WORLD HEALTH ORGANIZATION. World directory of dental schools, 1963. Geneva, 1967. 282 p.

YEAR BOOK OF ANESTHESIA, 1967-1968 Series. Chicago, Year Book Medical Publishers. 399 p. illus. \$11.00

educational films

The Canadian Dental Association sponsors the distribution of the following nine 16 mm. educational films which may be borrowed without cost. The films may be booked from Modern Talking Picture Service, Inc., 1875 Leslie Street, Don Mills, Ont. Telephone: 444-7347.

TEETH ARE TO KEEP 11 min. A National Film Board production. This film explains, using animation, how children should remember to care for their teeth. (For elementary schools only.)

DANNY'S DENTAL DATE 22 min. Using puppets, this film discusses the teeth and what they mean to everybody. (For elementary schools only.)

AN INTRODUCTION TO SOMEONE YOU KNOW 25 min. This is a colourful film displaying the intriguing life of a typical dentist and how he becomes a part of some people's lives when dental work is required. The drama unfolds following an accident. (For schools — career.)

THE CHALLENGE OF DENTISTRY 28 min. A thoughtful message for young men and women interested in a career in dentistry; subjects to take in school, nature of professional study, cost, etc.

PATTERN OF A PROFESSION 28 min. An excellent general interest film on the dental profession. Explains the research and background of a dentist and how the profession is striving to develop their knowledge. (Career — general interest.)

DENTISTRY THROUGH THE AGES OF MAN 23 min. This film acquaints the viewer with key concepts of modern dentistry and stimulates a desire to take advantage of its benefits. After a brief introduction contrasting the world of modern dentistry with that of prehistoric man, the film demonstrates the need for dental care throughout life, beginning with infants and progressing through childhood, youth, adulthood and old age. (Health — general interest.)

WHY FLUORIDATION? 14 min. The subject of fluoridation is covered in depth in this excellent film. Answers are given to the effectiveness and safeness of using fluoride. This film is a must for all to see how the use of fluoride in water can provide stronger and healthier teeth. (Health — general interest.)

ORAL CANCER 31 min. Presents a detailed examination for clinically detectable cancer of the mouth, illustrating with data the value of early detection. (Available to the dental profession only.)

ORAL EXFOLIATIVE CYTOLOGY 18 min. Smear technique for earliest detection of possible mouth cancer. (Available to the dental profession only.)

THE DENTIST AND CANCER. Stresses methods of biopsy, prompt treatment and oral prostheses. (Available to the dental profession only.)

Student members

For some time it has been abundantly clear that good reasons exist for extending the privilege of membership in the Association to undergraduate dental students. With these facts before them, the Governors moved last year to establish a category of student membership as an addition to those categories which already exist. To the students who have taken advantage of this opportunity the Association extends the warm hand of friendship and invites their comrades to follow suit.

When men and women become members of a profession, they are at once the inheritors of the knowledge accumulated in the past and the traditions established by their predecessors. This consideration applies with particular force to members of the healing professions, each of whom has a dual responsibility to the public he serves and the profession of which he is a part. The fathers of the dental profession realized very early that its obligations could not be fully met nor its potentialities fully developed by men working in isolation from their fellow members. They had to combine in order to determine a common policy and select those who would speak for them and assert their rights.

The dentist's professional organization offers something to him and requires something of him regardless of the sphere in which he works. It is particularly important that the student member shall realize this. As an undergraduate he is sheltered. His patients are selected for him. The equipment, instruments and materials he uses may likewise be furnished. But on graduation he is transported into another sphere where he must fend for himself. The only guide and the only disinterested advice he can then expect is from the professional organization which he and his colleagues maintain.

No human institution can ever be perfect. Each must constantly adjust itself and its machinery to deal with changing circumstances; but in the last analysis a professional association is no more and no less than the sum of its individual members, each of whom has a responsibility for the ultimate success of the whole. Such an association cannot prosper without the support of its members, and a profession cannot flourish if it lacks an organized fraternity for academic and administrative purposes. Those who choose to isolate themselves lose touch with scientific and technological trends and, in an increasingly regimented world, become the easy prey of politicians and planners. Governments, it is said, were instituted to do the things which the people cannot do for them-

selves. But each man can only grasp a few of the disciplines in which knowledge is divided; no individual can alone sustain his present level of living. This explains why arguments against statism so seldom prevail in the face of an option between government and the naked, isolated individual, and why society becomes increasingly subject to modification and control by the State. In the result, the State can ride roughshod over the individual unless he is part of an organization which is strong enough to insist on conditions that are acceptable both to those for whom it speaks and those with whom it deals. That, in itself, is a compelling reason why all dental students should support the body that represents the whole profession and take a share in its activities.

Since dentists are but a small part of the nation's fabric, their only strength lies in concerted action. This requires an established organization so that agreement upon objectives may be reached and the services of those willing to work for them may be retained and co-ordinated. The calibre of such an organization ultimately depends on what proportion of the profession is behind it. It is imperative, therefore, that it be as representative as possible, for the profession will need all its strength to hold its own in this age of government planning.

The CDA, while fully representative of the dental profession, still lacks an appreciable number of students who ought to be included in its membership but for various reasons are not. Those who hold back evade the responsibilities they have to their colleagues. They should reflect on their position, for anyone who believes that a professional organization is of no use to him misjudges our affairs. By reconsidering, they will not only advance their own best interests, but they will also cultivate that generous feeling of mutual respect which is the hallmark of a liberal profession.

Membres étudiants

Il n'y a pas de doute, il y a de bonnes raisons d'accorder aux étudiants le privilège de devenir membres de l'Association dentaire canadienne. C'est pourquoi, il y a quelque temps, les gouverneurs ont pris les mesures nécessaires pour établir une catégorie de membres étudiants. L'Association souhaite la bienvenue aux étudiants qui se sont déjà prévalus de ce privilège et invite leurs confrères à faire de même.

Quand des hommes ou des femmes sont admis à une profession, ils deviennent immédiatement les héritiers des connaissances accumulées dans le passé de même que des traditions établies par leurs prédécesseurs. Ceci est doublement vrai des membres des professions de la santé qui sont responsables à la fois envers le public qu'ils se sont engagés à servir, et vis-à-vis de la profession dont ils font partie. Les fondateurs de la profession dentaire ont très vite réalisé qu'il était impossible de remplir pleinement ses obligations si chacun travaillait de façon isolée. Il leur a fallu s'associer de façon à établir des politiques communes et à choisir les porte-parole dont ils avaient besoin pour défendre leurs privilèges.

Quel que soit le domaine dans lequel il exerce son activité, le dentiste peut s'attendre à recevoir de grands services de son association professionnelle,

mais il doit aussi s'attendre à contribuer au progrès de cette association. C'est une chose que l'étudiant membre doit comprendre pleinement. Tant qu'il est aux études, il est protégé; ses patients sont choisis pour lui, son appareillage, ses instruments et ses matériaux lui sont fournis. Diplômé, il se trouve transporté dans un monde différent où il doit se tirer d'affaire tout seul. Seule l'association professionnelle qu'il forme en collaboration avec ses confrères pourra le guider et lui offrir des conseils purement désintéressés.

Certes, aucune institution humaine n'est parfaite. Chacune doit continuellement adapter ses structures aux changements de circonstances. Mais, en fait, il faut comprendre qu'une association professionnelle n'est rien de plus que la somme totale des individus qui en sont membres, chacun ayant une part de responsabilité quant au succès de l'ensemble. Une telle association ne peut pas réussir sans le concours de tous ses membres. De même, une profession ne peut pas grandir sans un organisme qui servira ses besoins académiques et administratifs. Ceux qui cherchent à s'isoler perdront contact avec l'évolution scientifique et technique et, dans ce monde de plus en plus enrégimenté, ils deviendront une proie facile pour les politiciens et les organisateurs. On a dit que les gouvernements ont été créés pour faire ce que les individus ne peuvent faire eux-mêmes. Mais les ressources d'un homme isolé ont des limites. Personne ne put suffire seul à maintenir son niveau de vie actuel. Ceci explique pourquoi les arguments apportés contre l'étatisation ont si peu de chances de prévaloir lorsqu'il y a conflit entre le gouvernement et un individu seul. Ceci explique aussi pourquoi la société est de plus en plus sujette au contrôle de l'état. A toute fin pratique, l'état peut écraser n'importe quel individu à moins qu'il ne fasse partie d'un organisme suffisamment fort pour obtenir un règlement qui soit à la fois acceptable pour ses membres et pour l'état. Il y a là une raison suffisante pour que tous les étudiants dentaires accordent leur support et prennent part aux activités de l'organisme qui représente la totalité des membres de la profession.

Puisque les dentistes ne représentent qu'une partie infime de la population, leur seule force réside dans l'union. Il faut donc un organisme qui puisse déterminer les objectifs qu'il faut chercher à atteindre et qui puisse coordonner les efforts de ceux qui sont prêts à y travailler. La force d'une telle association dépend du support que lui accorde la profession. Il est donc indispensable qu'elle soit aussi représentative que possible à un moment où la profession a besoin de toutes ses forces pour résister aux interventions gouvernementales.

L'ADC, bien qu'elle représente toute la profession dentaire, ne compte pas assez d'étudiants parmi ses membres. Ceux qui ont refusé de s'y inscrire se soustraient à leurs responsabilités vis-à-vis de leurs collègues. Ils devraient réfléchir, car quiconque croit qu'une association professionnelle ne lui sert à rien se méprend sur ses propres besoins. En choisissant d'adhérer dès maintenant à l'Association dentaire canadienne, ils y gagneront à tout point de vue. D'une part, ils serviront leurs propres intérêts et, d'autre part, ils feront part de sentiment de générosité et de respect mutuel qui est une des caractéristiques primordiales d'une profession libérale.



Membership in FDI:

what it means

In this and subsequent issues the Journal presents a series of short articles about the Fédération Dentaire Internationale. The Canadian Dental Association is one of 68 national member associations of FDI. Canadian dentists can participate directly by becoming individual supporting members. Annual supporting membership costs \$16. Applications should be directed to W. G. McIntosh, FDI national treasurer, 234 St. George St., Toronto 5, Ont.

Adhérence à la FDI,

sa signification

Dans ce numéro et dans ceux qui suivront, le Journal publiera une série d'articles sur la Fédération dentaire internationale. L'Association dentaire canadienne est l'une des 68 associations nationales membres de la FDI. Les dentistes canadiens peuvent y adhérer directement par le paiement d'une cotisation individuelle, dont le montant est de \$16 par an. Les demandes d'adhésion doivent être envoyées directement au Dr W. G. McIntosh, FDI national treasurer, 234 St. George St., Toronto 5, Ont.

The Fédération Dentaire Internationale is world dentistry's international organization. FDI was founded in 1900. It represents the dental profession on a voluntary international basis and fosters international programs to improve the dental and general health of people throughout the world.

FDI represents 68 national dental associations in 58 countries comprising approximately 300,000 dentists. Policies of the Federation must be approved by the FDI General Assembly. These policies are

La Fédération dentaire internationale est l'organisation internationale de la dentisterie mondiale. La FDI a été fondée en 1900. Elle représente la profession dentaire sur une base internationale volontaire et commandite des programmes internationaux pour améliorer la santé dentaire et générale de la population du globe.

La FDI représente 68 associations dentaires nationales dans 58 pays qui comptent environ 300,000 dentistes. Les lignes de conduite de la Fédération doivent être

The British Dental Association's Headquarters Building at 64 Wimpole Street, London. The Fédération Dentaire Internationale occupies space on the third floor represented by the three windows on the left.

then presented to national governments through the medium of the World Health Organization, the Council of Europe and wherever health is discussed at an international level.

FDI will hold its 56th annual session in Varna, Bulgaria, this year. Next year the Federation will meet in New York in conjunction with the American Dental Association. Further meetings are slated for 1970 in Bucharest, Rumania, and for 1971 in Munich, Germany. In October 1972 FDI will hold its 15th Quinquennial World Dental Congress in Mexico City.

The annual sessions are primarily meetings of dentistry's international parliament — the General Assembly of delegates of the member associations of the FDI — but they also provide an outstanding scientific program. The reports, lectures, free communications, table clinics and exhibits presented at these meetings offer something to all supporting members of the Federation who alone may attend these annual sessions. The average attendance varies between 1,500 and 2,000 delegates who come from 40 or more countries.

FDI World Congresses, held every five years, set future policies for dental research, education, practice, dental public health, military dental services, standards and statistics. These policies are formulated by the Federation's seven standing commissions whose members and advisers, drawn from all over the world, have special knowledge and wide experience in their respective fields. The average attendance at these world congresses ranges between 7,000 and 10,000 delegates who come from more than 80 countries.

The Federation exists for and through its members. Voting members are the official representatives of national dental associations whose subscriptions finance most of the work of the Federation. Individual dentists who take pride in belonging to an international health profession can also become supporting members of



Le siège social de la British Dental Association, à Londres, 64 Wimpole Street. La Fédération dentaire internationale occupe une partie du troisième étage et l'on peut voir ses trois fenêtres, à gauche.

approuvées par l'assemblée générale de la FDI. Ces lignes de conduite sont alors présentées aux gouvernements nationaux par l'entremise de l'Organisation mondiale de la santé, du Conseil de l'Europe et partout où l'on parle de la santé à un niveau international. La FDI tiendra sa 56e réunion annuelle à Varna, Bulgarie, cette année. L'année prochaine, la Fédération se réunira à New York conjointement avec l'American Dental Association. D'autres réunions sont prévues à Bucarest, Roumanie en 1970 et à Munich, Allemagne en 1971. En octobre 1972, la FDI organisera son 15e congrès dentaire mondial quinquenal, à Mexico.



The Secretary General of the FDI, Dr. Gerald Leatherman, and his executive assistant, Miss Mary Barker.

the Federation and thereby help to expand its program. Its past record, present activities and future programs amply justify the request that every dentist should support the Federation. At present there

Canada's Brig.-Gen. B. P. Kearney and Lt.-Col. L. A. Richardson attended the Paris quinquennial congress in 1967.



Le secrétaire général de la FDI, le Dr Gerald Leatherman et son assistante exécutive, Mlle Mary Barker.

Les réunions annuelles sont avant tout des réunions du parlement international de la dentisterie, c'est-à-dire l'assemblée générale des délégués des associations membres de la FDI, mais elles offrent également un remarquable programme scientifique. Les rapports, conférences, communications libres, démonstrations cliniques et expositions présentés lors de ces réunions offrent quelques choses à tous les membres contributeurs de la Fédération qui seuls ont le droit d'assister à ces réunions. Le nombre des participants varie entre 1,500 et 2,000 délégués de 40 pays et plus.

Le congrès mondial de la FDI, qui se tient tous les cinq ans établit les directives futures pour la recherche dentaire, l'éducation, la pratique dentaire, la santé publique les services dentaires militaires, les normes et les statistiques. Ces lignes de conduite sont formulées par les sept commissions permanentes de la Fédération, dont les membres et conseillers en provenance du monde entier, ont des connaissances spéciales et une vaste expérience dans leurs domaines respectifs. L'assistance moyenne à ces congrès mondiaux est de 7,000 à 10,000 délégués, qui viennent de plus de 80 pays.

La Fédération existe pour et par ses membres. Les membres électeurs sont les représentants officiels des Associations dentaires nationales, dont les cotisations financent la plus grande partie du travail de la Fédération. Les dentistes qui éprouvent une certaine fierté à appartenir à une organisation internationale de santé

Le Brig.-Gen. B. P. Kearney et le Lt.-Col. L. A. Richardson représentaient le Canada au congrès quinquennal de Paris, en 1967.

are over 7,000 supporting members in 69 countries.

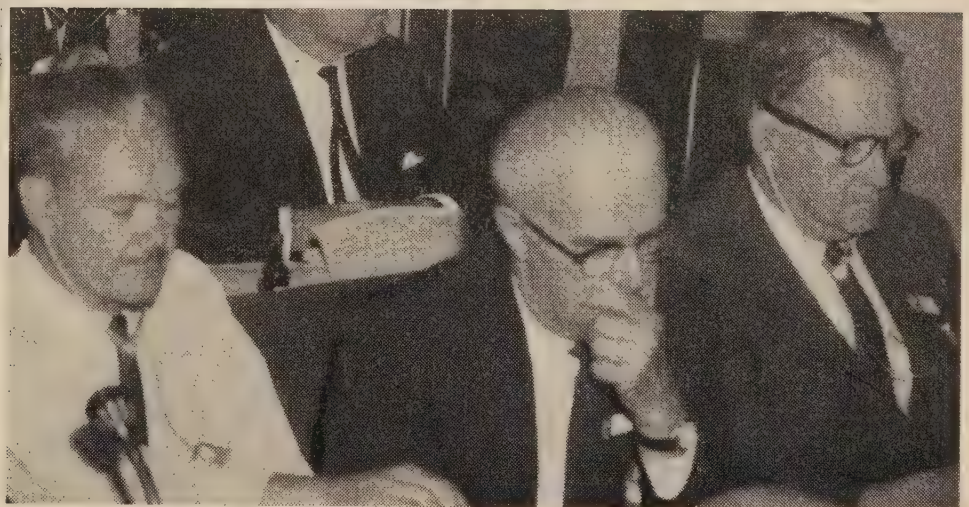
FDI is truly a world organization with members drawn from every continent. It has active regional organizations in Europe and the Asian-Pacific area. A third Latin-American regional organization may soon be formed. These organizations deal with problems that are specific to their respective areas. They strengthen the Federation's influence and activities in all parts of the world.

peuvent aussi devenir membres contributeurs de la Fédération et l'aider aussi à étendre son programme. Son histoire passée, ses activités actuelles et ses programmes futurs justifient sa demande de support de la part de tous les dentistes. Elle compte à l'heure actuelle plus de 7,000 membres contributeurs dans 69 pays.

La FDI est vraiment une organisation mondiale avec des membres de tous les continents. Ses activités régionales s'étendent à l'Europe et à la région Asie-Pacifique. Il se pourrait qu'une troisième organisation régionale latino-américaine soit formée sous peu. Ses organisations s'occupent des problèmes inhérents à leurs régions respectives. Elles renforcent l'influence de la Fédération et ses activités dans toutes les parties du monde.

La FDI, comme toutes les organisations internationales, doit communiquer pour exister. Elle publie tous les trimestres "le

The Canadian Dental Association is represented by three delegates at FDI annual sessions. Delegates to the Tel Aviv, Israel, session in 1966 were (below left) James Zimmerman, Calgary; CDA Secretary W. G. McIntosh, Toronto; and Herbert Caplan, Montreal. At the 1967 Paris quinquennial congress the Association was represented by Dr. McIntosh; D. W. Gullett, Toronto; and Gustave Ratté, Quebec City.



Trois délégués représentent l'Association dentaire canadienne aux réunions annuelles de la FDI. Les délégués à la réunion de Tel-Aviv, Israël en 1966 étaient (ci-dessus, à gauche) le Dr James Zimmerman de Calgary; le secrétaire de l'ADC, le Dr W. G. McIntosh, Toronto et le Dr Herbert Caplan de Montréal. Les Drs McIntosh, D. W. Gullett, Toronto et Gustave Ratté, Québec représentaient l'Association au congrès quinquennal de Paris, en 1967.

FDI, like all international organizations, depends on communication for its very existence. It publishes the quarterly *International Dental Journal* and a quarterly *Newsletter* which are sent to all supporting members. Other recent FDI publications include a *Dental Lexicon* in four languages and a book, *The Story of the FDI*, which relates its own history. The Federation has also published nine international specifications for dental materials which will shortly become official recommendations of the International Standards Organization. FDI has, moreover, issued policy statements on dental technicians and other dental auxiliaries, specialization, health education, public relations and fluoridation.

The Federation is administered from London by a Secretary General and a staff of eight in permanent offices situated in the British Dental Association headquarters building. The Secretary General is directly responsible to a four-member Executive Committee which acts for a 15-member Council between meetings of that body. The Council, in turn, reports to the General Assembly.

FDI has helped a comparatively young profession to establish its independence. It continues to assist its member organizations to function as integral parts of a health profession fulfilling world-wide responsibilities.

Journal dentaire international" et un bulletin, qui sont envoyés à tous les membres contributeurs. D'autres publications récentes de la FDI comprennent un lexique dentaire en quatre langues et un livre "L'histoire de la FDI". La Fédération a publié également neuf normes internationales pour les matériaux dentaires qui deviendront bientôt des recommandations officielles de l'Organisation internationale de normalisation. De plus, la FDI a établi des lignes de conduite gouvernant les techniciens et autres auxiliaires dentaires, la spécialisation, l'éducation dans le domaine de la santé, les relations extérieures et la fluoration.

La Fédération est administrée de Londres par un secrétaire-général et un personnel de huit membres, dans des bureaux permanents situés dans l'immeuble du siège social de la British Dental Association. Le secrétaire-général dépend directement d'un comité exécutif de quatre membres qui agit au nom d'un conseil de 15 membres dans les intervalles qui séparent les réunions de cet organisme. Le conseil, à son tour, fait rapport à l'assemblée générale.

La FDI a aidé une profession relativement jeune à établir son indépendance. Elle continue à aider ses organisations membres à fonctionner comme partie intégrale d'une profession de santé qui fait face à ses responsabilités mondiales.

Gerald Leatherman

Recruitment to the Dental Profession • Each individual dentist, by virtue of example and service in the community can create a feeling of respect which encourages others to take up the profession . . . Each member of the profession has a contribution to make (in recruitment). — G. H. Leatherman, secretary-general of the Fédération Dentaire Internationale.

O. P. Sykora,* DDS, PhD, Montreal, Que.

Direct veneers of a thermoplastic crown and bridge veneering material

Pyroplast crown and bridge veneering material may be used in certain situations where porcelain is contra-indicated. This thermoplastic material possesses the following advantages over conventional plastic veneering materials: (a) the dentist can make direct veneers on a precast gold framework while the patient is seated in the chair; (b) elimination of the wax-up, flask-curing and de-flasking procedures removes the danger of causing marginal damage to the veneer. The procedure for using Pyroplast is described.

Les couronnes et le matériau de revêtement des bridges Pyroplast peuvent être employés dans certains cas où la porcelaine est contre-indiquée. Ce matériau thermoplastique a les avantages suivants, sur les revêtements plastiques courants: (a) le dentiste peut faire directement des revêtements sur une charpente en or pré-coulé pendant que le patient est dans le fauteuil, (b) l'élimination du modelage de la cire, de la vulcanisation au moufle et des procédés de dévulcanisation supprime le risque d'un endommagement marginal du revêtement. On explique le mode d'emploi du Pyroplast.

It is difficult to furnish explicit written instructions for the shading and detailed staining of an anterior veneer. Formerly, this work had to be delegated to a dental laboratory technician who was usually remote from the dentist's office. Pyroplast (Williams-Justi), a thermoplastic veneering material, overcomes this problem. It permits the dentist to make his own veneer crowns and simple bridges of the desired shade on a precast gold framework. He can make these veneers in the time usually required for a regular

appointment. It would be difficult to achieve a superior blending of colours between the restoration and the adjacent teeth by other indirect methods.

PROCEDURE

The necessary equipment includes a heater; a small oven; the kit with requisite shades, stains, opaquing material and veneering liquid; dappen dishes; brushes;

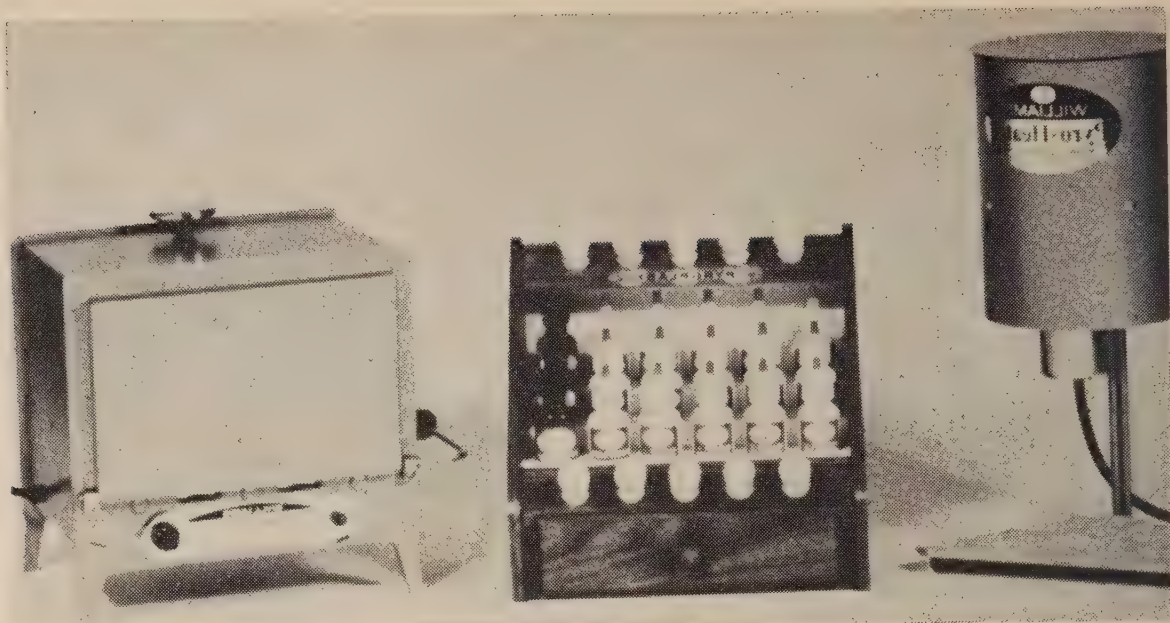


FIGURE 1 Equipment required for processing Pyroplast: heater (r.); kit with shades, stains, opaquing material, dappen dishes, brushes, measuring spoon and dropper oven (l.).

and a measuring spoon and dropper (Figure 1).

Casting Design

1. The casting must have maximum rigidity compatible with minimum bulk.



FIGURE 2 Full veneer gold crown with proper retention.

2. Hard gold must be used for the framework.

3. All supporting structure must be at or near 90 degrees to the direction of the force of mastication.

4. Unprotected incisal coverage is only permissible if unhindered occlusal excursion is assured in all directions; otherwise fracture may occur at the point of interference.

5. Adequate retention must be provided in the area that is to receive the veneering material (Figure 2).

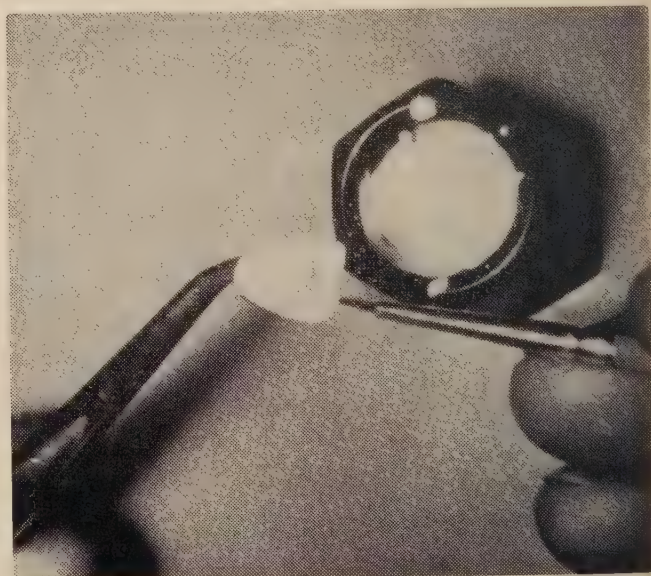


FIGURE 3 The casting is coated with opaquing mix.

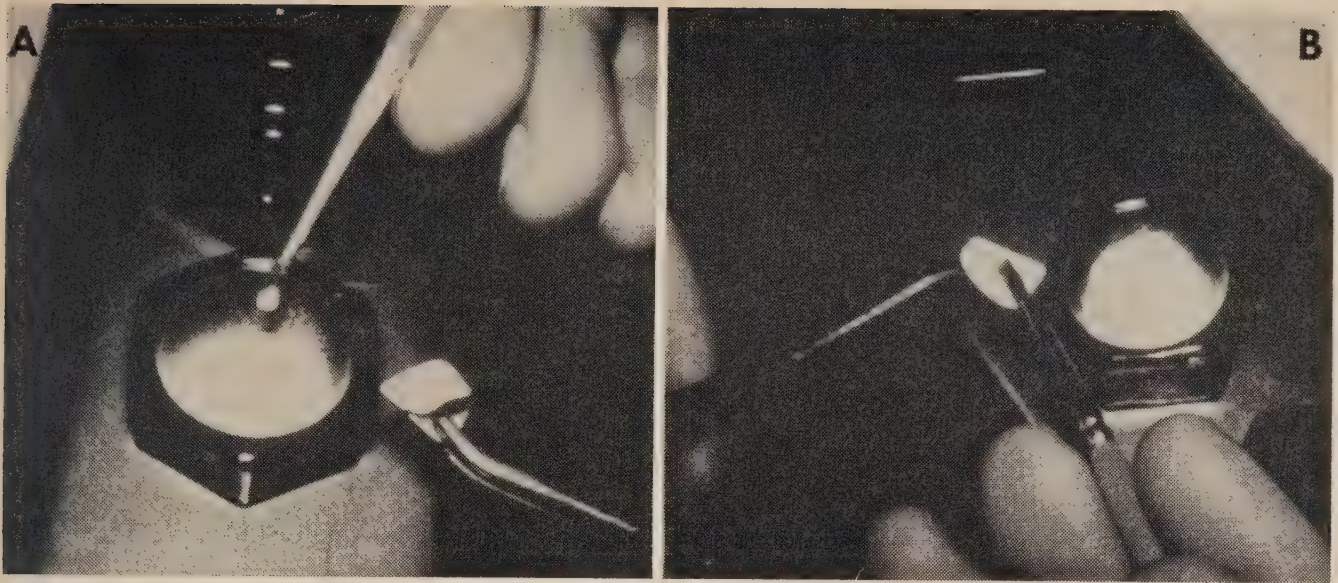


FIGURE 4 Application of veneering material. A, sable brush is saturated with veneering liquid, then dipped into body powder in dappen dish. B, thin layers of wet body powder are deposited on the cured opaquing material.

Application and Processing of the Opaquing Material

1. The desired opaquing material is selected according to the colour required to mask the gold.

2. The opaquing powder is mixed in a dappen dish. A few drops of veneering liquid are added to produce a creamy consistency.

3. The opaquing mix is applied with a small clean sable brush to the casting until a thin even coating masks all gold (Figure 3).

4. The opaquing material is partially

dried under the heater until it loses its gloss.

5. The casting is cured for eight minutes in the oven which has been pre-heated to 275°F.

6. The casting is removed and the opaquing material is allowed to bench-cure.

Application and Processing of the Veneer

1. The desired basic body powder, incisal powder, stains and veneering liquid are pre-heated in separate dappen dishes

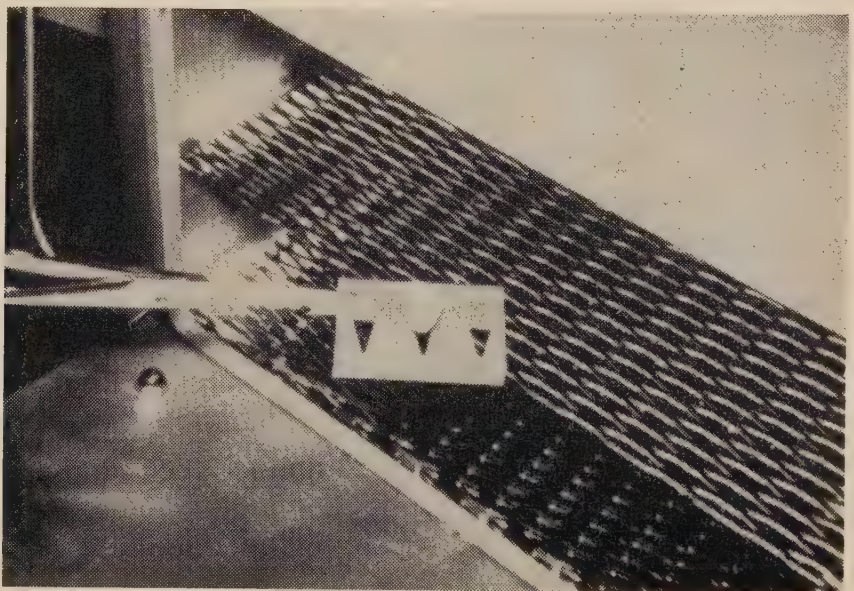


FIGURE 5 Built-up veneer on crown is heat-cured for eight minutes at 275°F.

for two minutes in the oven at 275°F.

2. Holding the casting by a haemostat or tweezers in one hand, the sable brush is dipped into the veneering liquid. When saturated, the moist brush is dipped into the body powder (Figure 4A). Thin laminae of the wet powder are deposited on the cured opaquing material (Figure 4B). The casting is passed under the heater to remove excess liquid until the gloss fades, leaving a putty-like mass.

3. The desired gingival shade is achieved by repeated applications of moist body powder which are dried under the heater. This step takes about 10 minutes.

4. Incisal, gingival and other stain modifications are blended as the build-up proceeds by vibrating the crown with a serrated instrument.

5. It is unnecessary to over-build the veneer because shrinkage of the material is negligible.

6. The casting is placed on a Sagger or similar tray and cured for eight minutes in the oven which has been pre-heated to 275°F (Figure 5).

7. The casting is removed and allowed to cool for about two minutes; trimming and polishing is done as for any plastic veneering material.

Cementation

1. It is important to avoid any excessive pressure. The casting may flex in response to strong pressure but Pyroplast, unable to bend like other plastics, may fracture.

2. Seating pressure should be firm but gentle. Controlled de-plating of the casting is desirable in order to provide sufficient room for cement.

3. The occlusion must be checked and all interferences removed before the patient is dismissed.

DISCUSSION

Though porcelain remains the ideal permanent veneering material, Pyroplast is useful when porcelain is contra-indicated. Pyroplast possesses the following advantages:

(a) Veneers can be constructed without the necessity of waxing-up, flask-curing and subsequent de-flasking.

(b) This eliminates the risk of marginal damage.

(c) The dentist can make the veneer while the patient is seated in the chair.

(d) The patient can express his wishes as the veneer is made and the dentist can satisfy the most demanding patient.

(e) Alternatively, a commercial laboratory can make the veneer. If the patient does not like the shade, the dentist can reduce the veneer with a stone, re-apply a correcting layer of Pyroplast and cure this for eight minutes. Consequently, the patient does not have to return for another sitting.

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Paul Chapnick, DDS, R. W. Matchett, DDS and

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Hyperparathyroidism: review and case report

Bilateral recurrence followed the excision of a giant-cell epulis in the lower jaw of a 39 year old woman. Subsequent blood analysis disclosed the presence of hyperparathyroidism. Prompt recovery ensued upon excision of four parathyroid adenomas — three near the thyroid gland and one in the mediastinum. Cystic oral lesions showing evidence of osteoclastoma or benign giant-cell tumour should not be totally excised until blood tests have eliminated the possibility of hyperparathyroidism or other systemic disorders.

Une récurrence bilatérale à la mâchoire inférieure s'est produite chez une femme de 39 ans à la suite de l'excision d'une épulis giganto-cellulaire. L'analyse sanguine subséquente révéla la présence d'hyperparathyroïdisme. Le rétablissement fut rapide après l'excision de quatre adénomes parathyroïdiens, trois près de la glande thyroïde et un dans le médiastin. Des lésions cystiques buccales indiquant la présence d'un sarcome myéloïde de l'os ou d'une tumeur bénigne giganto-cellulaire ne doivent pas être excisées complètement avant que des analyses sanguines aient éliminé la possibilité du parathyroïdisme ou d'autres désordres généralisés.

Hyperparathyroidism, a rare and complex endocrine disturbance, is characterized clinically by renal, skeletal or gastro-intestinal symptoms. The diagnosis depends upon abnormal chemical findings in the blood and urine. The occurrence of a 'giant-cell epulis' as the presenting symptom of hyperparathyroidism is rare and has prompted this report. Early diagnosis and treatment will avert irreparable kidney damage. A brief review of the

clinical and laboratory features of hyperparathyroidism is therefore included.

GIANT-CELL LESIONS OF THE ORAL CAVITY

1. Central giant-cell tumour, a true neoplastic lesion, may occur in the jaws but is more apt to appear in other bones of the skeleton. It is seen in the bicuspid and ramus areas when it occurs in the

mandible. Radiographs reveal extensive radiolucent areas with irregular margins. Teeth may migrate and may be resorbed at the apices. Extensive resection of the immediate surrounding area is recommended.

2. Giant-cell reparative granuloma can occur within bone (central) or peripherally (gingiva). The covering mucosa is usually intact. The teeth may migrate. The lesion is pedunculated or may have a broad-based smooth surface. It is reddish-blue and often bleeds spontaneously or in response to minor trauma. Radiographs are often negative or may reveal a circumscribed cyst-like radiolucent appearance. There is usually a history of previous injury such as recent tooth extractions, denture irritation or trauma from a blow. Recurrence is rare if surgical excision is adequate. When exposed surgically, the lesion has a liver-like appearance.

3. Giant-cell lesion of hyperparathyroidism resembles the lesions previously described.

The microscopic appearance of all three lesions is similar. All contain an abundance of multinucleated giant cells, fibroblasts and haemosiderin; therefore the diagnosis cannot be made solely from a biopsy report.

Pathogenesis. — Adenoma of the parathyroid gland is the usual cause. Less than 10 per cent of the cases stem from diffuse hyperplasia of all parathyroid glands. Rare cases are due to carcinoma of a parathyroid gland. The location of normal as well as abnormal parathyroids is extremely variable, glands having been found from 1 cm. above the upper pole of the thyroid gland down to the level of the pericardium in the mediastinum. The manifestations of the disease are due to an increased production of parathyroid hormone by the adenoma. The hormone acts primarily on renal tubules to diminish the reabsorption of phosphorus. Consequent loss of serum phosphorus creates an imbalance between calcium and phosphorus ions in the blood. To restore the ionic balance, calcium is withdrawn from the skeleton. This causes hypercalcaemia and subsequent demineralization of the bones.

An exceptionally high oral intake of calcium (milk) minimizes the bone changes.^{1,2}

Signs and Symptoms. — Skeletal manifestations vary from simple back pain, joint pains, painful shins and similar complaints to actual pathological fracture of long bones and spine with loss of height.

Polyuria and polydipsia occur early in the disease. Stones containing calcium or phosphate salts may be passed in the urine. Secondary infection and obstruction may cause renal damage leading eventually to uraemia.

Hypercalcaemia (increased calcium in the serum) is characterized by thirst, nausea, anorexia and vomiting. There is often a past history of peptic ulcer and obstruction or even haemorrhage. There may be stubborn constipation, anaemia, asthenia, and weight loss. Depression and psychosis may occur. The fingernails and toenails may be unusually strong and thick and the joints may exhibit hypermobility. Calcium may be precipitated in the eyes around the pupil. In secondary (renal) hyperparathyroidism calcium is also precipitated in the soft tissues, especially around the joints.

Laboratory Findings. — A pre-operative diagnosis of hyperparathyroidism depends upon the laboratory demonstration of disturbed calcium and phosphorus metabolism. The chief criteria are (1) hypercalcaemia, (2) hyperphosphataemia, (3) increased calcium in the urine, and (4) elevated serum alkaline phosphatase. There is excessive loss of phosphorus in the urine in the presence of low or normal serum phosphorus. Normal serum calcium is 9-11 mg./100 cc. Normal serum phosphorus is 3-4.5 mg./100 cc. Normal alkaline phosphatase in the serum is 2-5 Bodansky units. The alkaline phosphatase is elevated only if bone disease is present. The level of circulating alkaline phosphatase depends partly on the activity of osteoblasts; these increase as a result of the decalcification in hyperparathyroidism. Circulating alkaline phosphatase is therefore a reflection of bone change rather than of hyperparathyroidism.



FIGURE 1 Initial radiograph, taken prior to biopsy, showing osteoporosis and 'ground glass' appearance in the lower right molar region.

Radiographic Findings. — A generalized skeletal decalcification is the outstanding radiographic finding. This demineralization is not evenly distributed, being more pronounced in the extremities, skull and jaw. Characteristic changes occur when facial bones are affected. The state of the lamina dura is of importance. Lack of continuity of the lamina dura around the teeth may be indicative of generalized decalcification. In addition to loss of the lamina dura, the normal architecture of the bone is changed and the usual arrangement of trabeculae is replaced by a fine granular 'ground glass' osteoporosis. The teeth fail to show any decalcification

and therefore contrast markedly with the decalcified maxilla and mandible.³ There may also be areas of cyst-like bone destruction. These lesions, which look like cysts in the radiographs, are not true cysts but represent areas of fibrosis. The teeth often become mobile and malocclusion may result.

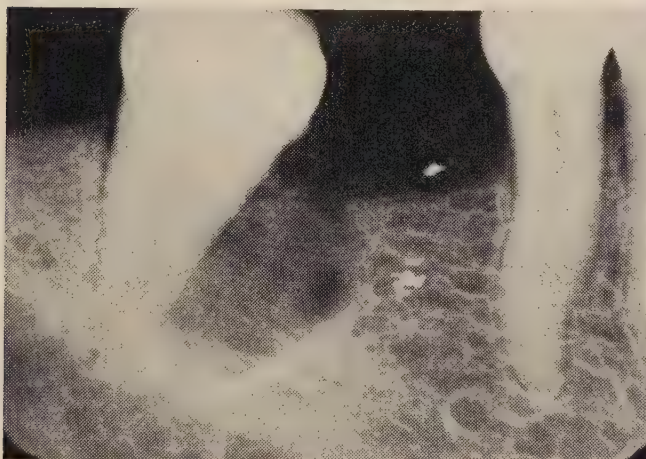
Case Report

INITIAL EPISODE

Initial History and Examination. — M.H., a 39 year old white housewife, was admitted to hospital on December 5, 1966. The lower right first and second molars had been extracted five months previous-



FIGURE 2 Radiographs taken one month after biopsy. The lower left molar region shows a cyst-like radiolucency mesial to the second molar which has no lamina dura. Amalgam debris is evident. The lamina dura is also absent from the upper and lower incisors. The trabecular pattern around these teeth shows evidence of osteoporosis.



ly due to extensive caries. A partial denture was subsequently made. Two months later the patient complained of an enlarged painless mass which prevented the denture from seating properly and she was referred to us for consultation. Clinical examination at that time disclosed a soft, reddish-blue, irregular, friable mass measuring approximately 2.5 x 2 cm. This involved the entire lower endentulous molar ridge and extended bucco-lingually and upward as high as the occlusal surface of the adjacent bicuspid tooth. There was a past history of hypertension (no medications were taken) as well as recent bouts of nausea. The patient also complained of frequent fatigue. She had been treated recently by her physician for a painful shin and sore joints (thought to be a form of rheumatoid arthritis). She had been in hospital previously for normal deliveries and had three healthy children. Periapical radiographs revealed a diffuse osteoporosis (Figure 1). The differential diagnosis strongly suggested a giant-cell epulis in preference to other probable pathological lesions.

Operative Procedure. — The mass was excised under local anaesthesia supplemented by intravenous sedation. It was 'liver-like' in appearance and bled profusely. The lesion was difficult to separate from the adjacent bone and had to be removed along with some normal tissue and bone. The surgical site was then cauterized and the wound was packed with absorbable gelatin sponge and sutured.

Pathological Report. — The gross specimen consisted of approximately 10 pieces of friable brownish-tan tissue, the largest 2.5 cm. in greatest diameter. Also submitted were an ellipse of mucous membrane tissue, 1.5 cm. in greatest diameter, and a small section of bone.

The material submitted had many scattered giant cells with nuclei that resembled those of the stromal elements. The lesion was cellular and quite vascular, with focal areas of fibrosis as well as other more spongy areas. A rim of reactive new bone formation surrounded much of the lesion.

These findings resulted in a diagnosis of giant-cell reparative granuloma.

Postoperative Course. — Recovery was uneventful and the sutures were removed after six days.

SECOND EPISODE

Re-examination. — A new granuloma was observed four weeks postoperatively. This was similar in appearance to the original lesion. The opposite maxillary bicuspid area also had an unusual localized bluish appearance. Full-mouth radiographs were taken and a blood chemistry analysis was ordered.

Radiographic Findings (1). — The radiographs showed abnormal bone structure in most areas of the mandible and some areas of the maxilla. Some areas were more radiolucent while others were more radiopaque. The lamina dura was absent or difficult to see around several teeth (Figure 2).

Laboratory Findings. — Haemoglobin was 11.2 Gm./100 cc. (normal). The white blood count was 9,000 per cubic millimetre. Serum calcium was 15 mg./100 cc. (normal 9-11). We made a tentative diagnosis of hyperparathyroidism on the strength of these findings.

The patient was then admitted to hospital for further laboratory studies and a full radiographic survey of the skeleton. The urine (ph 6) was clear and normal except for increased urinary calcium and phosphorus. Sugar was not detected. Albumen was 2+. Serum calcium was 15.5 mg./100 cc. (normal 9-11). Serum phosphorus was 2 mg./100 cc. (normal 3-4.5). Serum alkaline phosphatase was 9 Bodansky units (normal 2-4.5 units).

Radiographic Findings (2). — Further radiographs disclosed a generalized skeletal decalcification. Several circumscribed radiolucent areas were evident in many of the long bones, skull and pelvis. The left tibia almost had a pathological fracture (Figure 3).

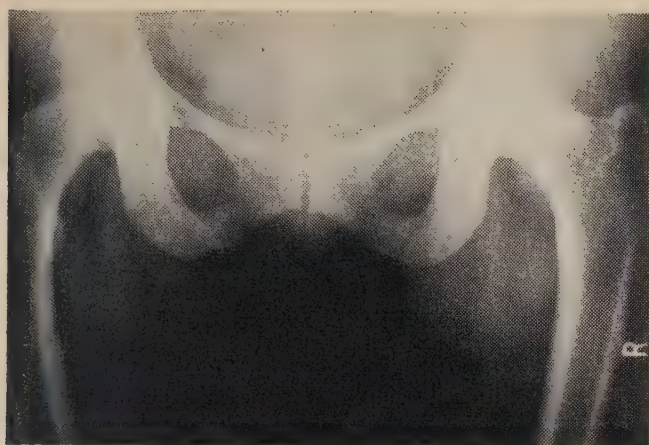


FIGURE 3 Radiographs of the skull, pelvis, forearm and leg. Note 'cyst-like' circumscribed radiolucent areas in the cranial vault; lesion in the ischium of the pelvis; radiolucent lesion in the radius of the forearm; and large radiolucent areas in the tibia (almost a fracture).

Operative Procedure. — Surgery was performed under a general anaesthetic. Three parathyroid adenomas (confirmed by microscopic study) were located with difficulty near the thyroid gland; a further adenoma was found in the mediastinum.

Postoperative Course. — Recovery was rapid. Serum calcium declined to 11 mg./100 cc. two days postoperatively and remained constant at 9.4 one year later.

Similar immediate improvement occurred in the remaining blood values. There was no evidence of severe kidney damage and the patient's pre-operative hypertension (180/100) diminished to 130/95. Joint pains and soreness of the bones disappeared. Radiographs taken eight months later showed that the cyst-like areas were calcifying (Figure 4). Symptoms of nausea, urinary frequency and lethargy likewise disappeared.

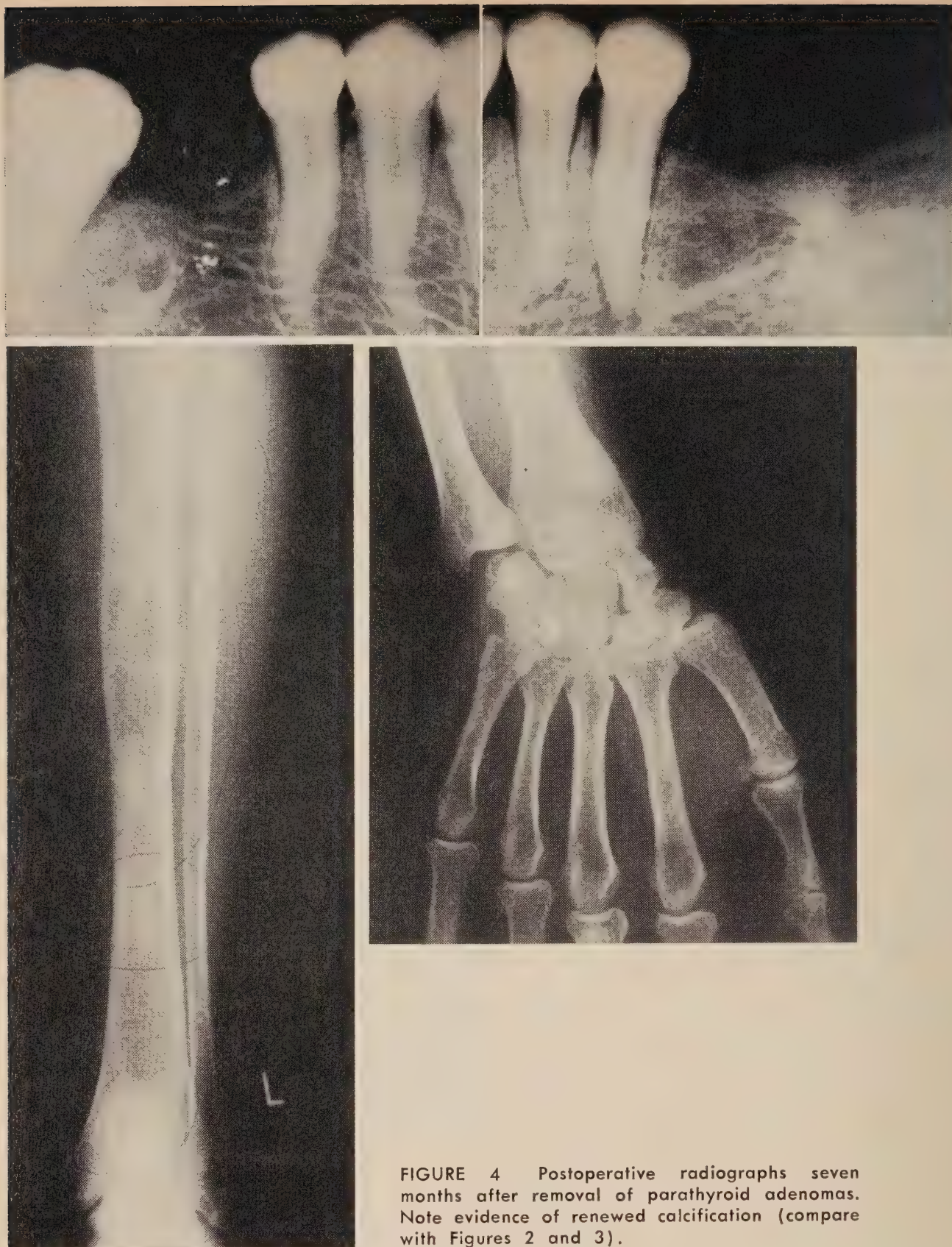


FIGURE 4 Postoperative radiographs seven months after removal of parathyroid adenomas. Note evidence of renewed calcification (compare with Figures 2 and 3).

SUMMARY

A review of hyperparathyroidism and giant-cell lesions is presented together with the report of an unusual case. Local treatment (major surgical excision) is contra-indicated when an oral cystic lesion manifests as one of the typical osteoclastomas or benign giant-cell tumours. A complete clinical and radiographic examination, including investigation of the

blood chemistry, should first be performed to rule out the possibility of hyperparathyroidism or other systemic manifestations.

1. Shira, Col. R. Postgraduate lecture series and personal communication.
2. Albright, Fuller and Reifenstein, E. C., Jr. The parathyroid glands and metabolic bone disease; selected studies. Baltimore, Williams & Wilkins Co., 1948.
3. Stafne, E. C. Dental roentgenologic aspects of systemic disease. *J. Amer. Dent. Ass.* 40:265, 1950.

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Review of surgical techniques for the treatment of periodontic deformities

Surgical operations for the correction of periodontic deformities comprise (1) gingival surgery, including gingival curettage, gingivoplasty and gingivectomy; (2) mucogingival surgery, including fraenotomy, fraenectomy, periosteal denudation, periosteal fenestration, apically repositioned flap, horizontally repositioned flap, free gingival grafts and proximal wedge operation; and (3) osseous surgery, including curettage for 'fill in,' osteoplasty, ostectomy and bone grafts. Each method is described together with its indications and contraindications. Oral health is rarely restored by surgical intervention alone; additional therapy and maintenance care are nearly always required. Nevertheless, surgery may be crucial for the outcome of periodontic therapy and must therefore be considered within the framework of any comprehensive treatment plan.

Les opérations chirurgicales devant corriger les difformités périodontiques comprennent (1) la chirurgie gingivale, y compris le curetage gingival, la gingivoplastie et la gingivectomie; (2) la chirurgie mucogingivale, y compris la frénctomie, la frénectomie, la dénudation périostique, la fenestration périostique, le remplacement apical du lambeau gingival, le remplacement horizontal du lambeau gingival, et des greffes gingivales; et (3) la chirurgie osseuse, y compris le curetage des lésions intra-osseuses, l'ostéoplastie, l'ostectomie et les greffes osseuses. Il est donné les indications et contre-indications pertinentes à chaque méthode. La seule intervention chirurgicale suffit rarement à rétablir la santé buccale. Elle doit généralement être suivie d'une thérapeutique supplémentaire et de soins d'entretien. Cependant, la chirurgie peut jouer un rôle d'une importance capitale dans le succès de la thérapie périodontique et il faut par conséquent, la considérer dans le cadre de tout programme de traitement complet.

Age-related surveys^{1,2} do not substantiate the widely held notion that periodontic disease is an adult disease.³ The incidence of gingivitis increases from childhood^{2,4} so that, by 45 years, 97-100 per cent of North Americans have periodontic disease.^{2,5-7} While more severe manifestations may be delayed until later life,

the early lesion is frequently evident in childhood. Since the disease is the major cause of tooth loss,^{8,9} its early recognition and treatment are imperative.

The first evidence of periodontic disease is gingival inflammation. This extends slowly until it penetrates the supporting structures and bone. There is ac-

companying destruction of gingival fibres and concomitant apical proliferation of epithelium along the root, resulting in pocket formation. In the presence of gingivitis, occlusal trauma may alter the pathway of inflammation so that the inflammatory exudate can pass directly to the periodontic ligament.¹⁰

The systemic contributing factors are generally little understood. Treatment therefore aims at improving the local environment.¹¹ Local aetiological factors include food impaction, calculus, improperly contoured restorations, irregularly aligned teeth, missing teeth and premature occlusal contacts. All predispose to the accumulation of bacterial plaque at the gingival margin or excessive occlusal stress.¹⁰ Plaque causes gingival inflammation and excessive occlusal stress may facilitate the spread of inflammation. Plaque and occlusal stress must therefore be minimized to control the disease.

Periodontic treatment aims at controlling plaque and occlusal stress by establishing a healthy anatomical and functional state which the patient can maintain.¹² Treatment must follow a logical sequence,¹³ the usual order of therapy being: (1) emergency care for relief of pain; (2) oral hygiene instruction emphasizing interproximal stimulation; (3) scaling and root planing to remove calculus and other surface irregularities which predispose to plaque accumulation; (4) occlusal adjustment to eliminate potentially harmful occlusal stresses by more even distribution and axial orientation of the occlusal stress; (5) temporary splinting when seriously weakened teeth should be stabilized; and finally (6) a waiting period of approximately two months in which the dentist can evaluate the patient's interest and cooperation and the response of the tissues to the initial therapy.^{14,15}

The foregoing sequence has numerous advantages. A pocket, if present, may be eradicated, thus obviating the need for surgery. If surgery is still required it can be confined to a more limited area. Tissue quality may be improved, making it easier to manipulate if surgery is needed. Surgery, says Glickman,¹⁶ also increases visibility and access to the operative field, eliminates tissue which could

harbour debris and perpetuate gingival disease, and hastens healing. The most important reason, however, is to allow the patient to acquire the necessary skill for maintaining good oral hygiene, a prerequisite for success following completion of periodontic therapy.

Surgery is necessary to eliminate residual pockets and defective tissue contour. While it is not a cure, surgery is often required to help the patient keep the dentogingival area free of plaque, which is the chief controllable cause of periodontic disease.

Surgical techniques vary according to the nature and location of periodontic lesions. These may be confined to the gingiva or may involve the alveolar process. Gingival and osseous surgery can be combined when gingivally-contained and bone-invading lesions occur simultaneously.¹⁷ The following classification is based on the type of tissue involved:

Gingival surgery (soft tissue operations coronal to the mucogingival junction), including gingival curettage, gingivoplasty and gingivectomy;

Mucogingival surgery (soft tissue operations involving the mucogingival junction), including fraenotomy, fraenectomy, periosteal denudation, periosteal fenestration, apically repositioned flap, horizontally repositioned flap, free gingival grafts and proximal wedge operation;

Osseous surgery, including curettage for 'fill in,' osteoplasty, ostectomy and bone grafts.

GINGIVAL SURGERY

Gingival surgery can correct minor changes in the periodontium when there are no osseous defects or anatomical aberrations of the alveolar process.¹¹ It is performed on the free gingival margin, the attached gingiva and the interdental papillae.

Gingival Curettage. — Pocket depth may be reduced through shrinkage induced by local debridement of the inner wall of suprabony pockets.¹⁸ Curettage is effective for eradication of relatively shallow suprabony pockets in oedematous gingiva.

It is contra-indicated when the pocket wall is fibrous and will not shrink post-operatively.

After infiltration anaesthesia the root is planed with hoes and curettes until it is clean and smooth. The inflamed sulcular tissue (epithelial lining of the pocket and epithelial attachment) is removed with a sharp curette. Buccal and lingual surfaces are curetted by supporting the gingival margin against the curette by finger pressure. Interproximally, the adjacent tooth provides the necessary support. The blade of the curette is then directed from within the pocket against the now firmly stabilized gingival wall. When bleeding stops, the operative area is covered for one week with periodontic pack or heavy adhesive foil. Powell and Alexander¹⁹ prefer a hot saline mouthwash instead of a pack.

Gingivoplasty. — This is surgical contouring of the marginal, attached and interproximal gingiva. Although pockets may thereby be eliminated, the main purpose is to achieve a desirable gingival shape. Gingivoplasty can correct thickened fibrotic margins, gingival clefts, gingival craters and unsatisfactory gingival contour following surgery provided an adequate width of gingival masticatory mucosa is available. The operation is useless if primary irritants, like improperly contoured fillings, persist. It is equally ineffective in the presence of underlying bone defects.

A long bevelled incision is made with a periodontic knife in the attached gingiva near the mucogingival junction. The interproximal tissue is further severed with an interproximal knife, then trimmed and removed with sharp curettes.¹⁸ Knife-edged margins, interdental grooves and cone-shaped interdental papillae help to achieve an ideal gingival architecture. Instruments used for this purpose include the electrosurgical scalpel,^{20,21} rough diamond stones^{22,23} and tissue nippers.²⁴ The operative site is covered with a periodontic surgical dressing for at least one week.

Gingivectomy. — This is the careful resection of unsupported tissue to the point where it is firmly attached.¹⁰ Although

reshaping the gingiva is part of the procedure, the main purpose is to eliminate gingival pockets. Gingivectomy eradicates surplus tissue in fibrous enlargement of the gingiva associated with false or true pocketing, as in diphenylhydantoin (Dilantin) hyperplasia and gingival fibromatosis. It also eliminates suprabony pockets coronal to the mucogingival junction and the excess gingiva covering tooth crowns during altered passive eruption.¹⁸ Not suitable for gingivectomy are: shallow pockets associated with gingival oedema (best treated by gingival curettage), periodontic pockets close to or beyond the mucogingival junction, and one- or two-wall intrabony pockets. The latter usually also require recontouring of the marginal bone.

Buccal and lingual pocket depths on the affected teeth are measured and recorded. Bleeding points outlining the pockets serve as a guide for the initial incision.¹⁰ Using a periodontic knife, a continuous bevelled incision is made from the back of the most distal tooth in the operative field, continued forward and blended into the mesial line angle of the most mesial tooth involved. This cut starts at a level apical to the bleeding points. Pressure is exerted until tooth substance is felt. The incision is made as close as possible to the bone without exposing it. The principles of gingivoplasty are employed to create the normal festooned pattern of the gingiva, ensuring that each pocket wall is completely resected.²⁵ The incised tissue is removed with an interproximal knife or heavy scaler. After thorough debridement of the soft tissue and scaling and planing of the root surfaces, the open wound is packed at weekly intervals for at least two weeks.^{26,27}

MUCOGINGIVAL SURGERY

The choice of a particular technique of mucogingival surgery depends on the relationship of the attached gingiva to the alveolar mucosa, the depth of the vestibular fornix and aberrations of fraena and muscle attachments.²⁸ Mucogingival surgery is usually combined with gingival

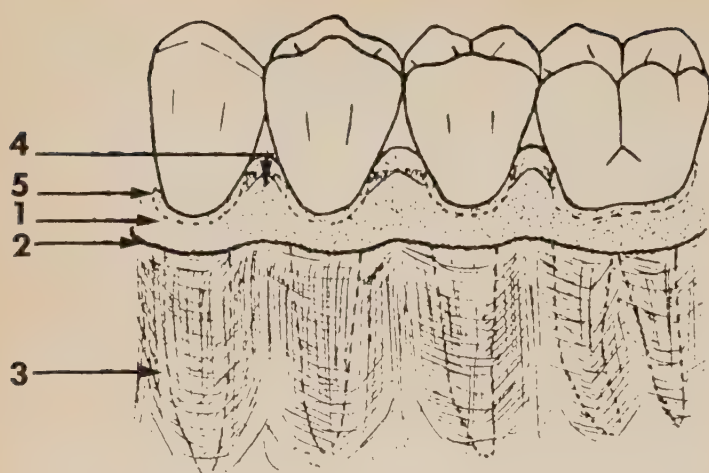


FIGURE 1 Normal anatomy of the periodontium. (1) Attached gingiva. (2) Mucogingival junction. (3) Alveolar mucosa. (4) Papillary gingiva. (5) Crest of interdental bone. (After M. N. Wilderman. *Int. Dent. J.* 17:519, 1967)

and, occasionally, osseous surgery. It aids pocket eradication by (1) eliminating the tension attributable to the insertion of fraena near the gingival margin, (2) retaining or creating adequate attached gingiva, (3) providing sufficient vestibular depth for efficient toothbrushing,²⁹ and (4) providing access to the alveolar process for osseous surgery.

Fraenotomy. — Partial severance of the fraenum,³⁰ particularly the mandibular labial fraenum, relieves tension on the marginal gingiva. Fraenotomy is contra-indicated when there is insufficient vestibular depth or insufficient gingival masticatory mucosa.

With the lip stretched taut the fraenum is severed with a scalpel. The open wound is then packed with a surgical dressing for at least two weeks.

Fraenectomy. — Excision of the fraenum³¹ is used for the same purpose as fraenotomy. Excision is also employed when the fraenum impedes correction of a diastema between maxillary central incisors. This should not be done in young children, however, because the defect may correct itself when the upper permanent cuspids erupt. Fraenectomy, like fraenotomy, is also contra-indicated when there is insufficient vestibular depth or insufficient gingival masticatory mucosa.

The fraenum is engaged with a haemostat and pulled outward. With a scal-

pel, incisions are made along the upper and lower surfaces of the haemostat. The intervening tissue is then removed. Any remaining fibres are dissected out with a periodontic knife. The wound edges are undermined and then approximated and sutured. A periodontic dressing is applied twice at weekly intervals.³²

Periosteal Denudation. — This operation¹¹ is also known as a stripping operation³³ or vestibular trough extension. It is a kind of double flap procedure^{28,34} for creating functional attached gingiva. Following marginal surgery the vestibule is deepened by sharp dissection, leaving the periosteum intact but stripping off the alveolar mucosa and submucosa.¹⁸ Periosteal denudation allows eradication of pockets on vestibular tooth surfaces when these pockets traverse a narrow zone of attached gingiva in the presence of a shallow vestibule. The operation should result in new attached gingiva and a deeper vestibule.³⁵ Although the increase in vestibular depth is not predictable,^{36,37} Bohannon states that if the edge of the mucosal flap is sutured to the apical edge of the exposed periosteum, greater vestibular depth will be more permanent.³⁸

A marginal gingivectomy is performed extending into the alveolar mucosa, if necessary. At least 2-3 mm. of marginal bone are exposed to create a sufficient band of attached gingiva. (This is contra-indicated when the labial cortical bone is thin.) With the lip stretched taut a vertical incision is then made beginning at the edge of the marginal wound. Cutting close to the bone surface, the sharp dissection is extended into the deeper structures to the required depth. Following haemostasis the operative site is dressed with a thick mix of surgical cement which is inserted to the full depth and width of the new vestibule. The pack is replaced after the first and second week.

Periosteal Fenestration. — This operation³⁹ is also known as periosteal separation.⁴⁰ Periosteal retention is modified in this procedure to expose a narrow strip of bone at the base of the surgically created vestibule instead of at the mar-

ginal crest. Periosteal fenestration can deepen the vestibular fornix, reposition fraenum attachments (in conjunction with vestibular deepening) and create new attached gingiva.

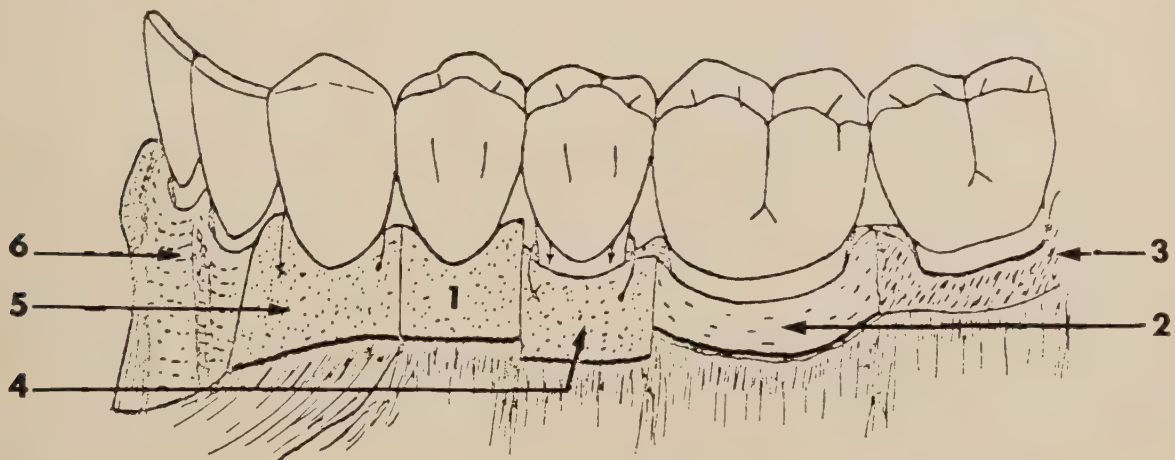
Marginal lesions are first eliminated by gingivectomy and, if needed, by osteoplasty and ostectomy. A horizontal incision is made at the mucogingival junction, through the alveolar mucosa, close to the periosteum. Slight tension on the lip facilitates this sharp dissection through the connective tissue and muscle fibres, thus increasing the vestibular depth. Further lateral relaxing incisions allow for blending of the mucosal flap with the adjacent tissues. At the level of the deepened vestibule a horizontal incision is made through periosteum to the bone. This cut, which is perpendicular to the alveolar process, extends over the entire operative field. Apical pressure with a periosteal elevator creates an osseous exposure of 4-5 mm. The coronal margin of the mucosal flap is then sutured to the periosteum forming the apical border of the fenestration. A surgical dressing is inserted to the base of this newly established vestibule. Adhesive foil completes the protective covering. The pack should be changed weekly for three weeks. Post-operative care includes the use of an ice pack and analgesics.⁴¹

Apically Repositioned Flap. — This is the elevation of a full mucoperiosteal flap which is repositioned apically and su-

tured into position so that the margin of the flap just covers the alveolar crest.⁴² This operation is used to eradicate periodontic pockets close to or beyond the mucogingival junction, increase the width of existing attached gingiva and relocate fraenum attachments.⁴³ Periosteal denudation is preferred in the mandibular molar region where difficult access impedes flap manipulation. The apically repositioned flap is also contra-indicated when there is no attached gingiva or when the labial cortical bone is thin.

A reverse, or inner, bevelled incision is made horizontally along the marginal gingiva. If very little attached gingiva exists the incision is made along the sulci and through the papillae. Releasing incisions are made at the mesial and distal borders of the tissue to be repositioned. Wherever possible these incisions are placed at least two teeth distant to the area involved. They extend vertically through the periosteum to the bone. A full mucoperiosteal flap is then retracted. The marginal tissue is removed, granulomatous tissue is curetted out and root surfaces are scaled and planed. Osseous surgery is performed as necessary. The flap is trimmed to conform to the bony surfaces and fixed at the level of the alveolar crest with interrupted and suspensory sutures. If a wider attached gingiva is desired the flap is positioned so as to leave some marginal bone exposed; this will then become covered with attached gingiva. Following haemostasis a perio-

FIGURE 2 Mucogingival procedures. (1) Normal unoperated area. (2) Periosteal denudation. (3) Periosteal retention. (4) Apically repositioned flap. (5) Horizontally repositioned flap. (6) Donor site of horizontally repositioned flap. (After M. N. Wilderman. *Int. Dent. J.* 17:519, 1967)



dontic dressing is applied and replaced after one week.

The apically repositioned flap is a modification of earlier procedures described by Nabers⁴⁴ and Ariaudo and Tyrrell.^{45,46} The latter⁴⁵ claimed an advantage in leaving periosteum on bone whenever possible. They preferred a split thickness flap which they obtained by sharp dissection to diminish postoperative pain, accelerate healing and lessen the possibility of significant bone resorption. They also claimed that a predictable zone of attached gingiva could be obtained by adjusting the relationship of the flap to the crest of the alveolar process. The amount of denuded bone that the flap does not cover generally results in attached gingiva.³⁴

Nabers⁴⁷ first described an initial incision running obliquely inward and apically from the marginal gingiva to the alveolar crest in order to facilitate reflection. Friedman⁴² also recommended this internal bevelled incision to obtain as thin a gingival complex as possible. The incision removes sulcular epithelium and inflamed marginal tissue and thins any bulky fibrotic gingiva.

Horizontally Repositioned Flap. — This operation, also known as a sliding flap or laterally repositioned flap, is a gingival graft to repair root denudation resulting from gingival recession.⁴⁸ It is used to correct an isolated labial or buccal root surface denuded of attached gingiva provided the donor site has a sufficiently thick labial cortical plate. Teeth or roots in labioversion (mesiobuccal roots of maxillary first molars, maxillary and mandibular cuspid roots) are unsuited to this operation.

First, a U-shaped incision or two vertical incisions joined by a horizontal incision are made in the alveolar mucosa. The incised tissue is then removed, eliminating the epithelial attachment and granulation tissue. Next, the exposed root surface is carefully scaled and planed. The donor site is outlined by a vertical incision extending from the gingival margin well into the alveolar mucosa. This cut should provide a flap at least one and a half times the width of the surface to be covered. The fraenum attachment may

now be repositioned if it interferes with the operative field. A mucogingival flap is then elevated from the donor site. This flap may be of full or partial thickness depending on the thickness of the bone at the donor site. The dissection is extended far enough apically to allow free movement of the flap. The denuded surface is then covered by the flap which is attached by lateral and suspensory sutures to the far edge of the defect. Telfa dressing may be placed over the flap and donor site followed by application of a surgical cement. The pack is replaced at weekly intervals.⁴⁹

Grupe⁵⁰ states that it is possible to retain the marginal gingiva with its attachment to the tooth and bone when adequate fibrous gingiva is available at the donor site. This is accomplished by making a horizontal incision, apical to the gingival sulcus, at different levels on the two teeth within the donor site. The use of an adjacent edentulous ridge as a donor site has also been advocated.¹¹

Free Gingival Graft. — This is a further modification of the sliding flap operation, the graft tissue being detached and sutured over the defect.⁵¹

The recipient site is prepared as in Grupe's operation, but the donor site is prepared by elevating an appropriately sized split thickness flap. This flap is detached and trimmed so as to slightly overlap the operative site. The connective tissue side of the graft is placed against the tooth. The graft is then fixed with four lateral sutures and a suspensory suture encircling the tooth. The operative site is protected with pack for three weeks.⁵² Nabers⁵³ uses a similar procedure to extend the vestibular fornix.

Proximal Wedge Operation. — This comprises the removal of an adequate wedge of tissue on the proximal surface of a tooth with undermining of the edges. An internal bevelled incision is utilized. The operation permits closer adaptation of the remaining soft tissue to the underlying bone. The proximal wedge operation can eradicate a periodontic pocket on a terminal tooth which may or may not require access to bone. The operation is contra-indicated when the ascending ra-

mus and oblique ridge on the mandible limit the distal space or when a maxillary pocket is adjacent to a limited distal space or a flat palate.

There are three classic proximal wedge incisions: the triangular, the square and the linear. Variations of these depend on the type of lesion present. The principles of removing a wedge of tissue and preserving the attached gingival tissues with sufficient undermining are the same for all three.⁵⁴

In the triangular incision a triangular cut is made with the base of the triangle toward the tooth. Both lateral cuts have a reverse bevel. The underlying bone topography is readily seen upon removal of this wedge. All granulation tissue is eliminated and root surfaces are scaled and planed. Osseous surgery is performed where necessary and the two gingival walls of the incision are apposed. If the bulk of bone precludes precise closure of buccal and lingual aspects of the incision, further osseous surgery may be required until the tissues can be sutured.

Kramer and Schwarz⁵⁵ have adapted this technique to an intrabony defect between two teeth separated by an edentulous area. Here the interproximal wedge is achieved by two inversely bevelled incisions and the elevation of two mucoperiosteal flaps, one on the buccal and the other on the lingual side. The central wedge of tissue is removed, exposing the osseous defects which are corrected by appropriate osseous surgery. The flaps are then repositioned and sutured.

OSSEOUS SURGERY

The present interest in osseous surgery stems from Schluger's⁵⁶ classic principle of harmonious gingival and osseous architecture to prevent the recurrence of pockets after periodontic surgery. Successful osseous surgery demands a careful reshaping of irregular bony surfaces surrounding the teeth to create an osseous form consistent with good gingival anatomy. Mucogingival surgery often provides access for osseous surgery. Prichard¹¹ advocates reverse bevel incisions and retraction of mucoperiosteal flaps for this purpose. The standard surgical flap with

sulcular incisions and elevation of mucoperiosteal flaps or split flaps may also be employed. Following surgical entrance all soft tissue is carefully removed from the intrabony defect and root surfaces are scaled and planed. After osseous contouring the mucoperiosteal flaps are adapted to the bony surfaces and retained with suitable sutures.

Curettage. — This is the removal of all soft tissue between the tooth root and the osseous walls in order to encourage new bone to fill in the defect.⁵⁷ Curettage is effective in narrow three-walled intrabony pockets. It also constitutes the first stage of therapy for two-walled intrabony pockets to be followed by osteoplasty, with or without ostectomy.⁵⁸

Gingivectomy may provide adequate access to narrow three-walled defects. All other intrabony defects should be approached by mucogingival surgery, particularly one of the flap operations. All soft tissue between the tooth root and the osseous walls is eliminated with sharp hoes and curettes. This includes the removal of epithelium, epithelial attachment, granulation tissue and particularly the transseptal fibres.⁵⁹ At the same time, the root surfaces are carefully scaled and planed. The soft tissue flap is then repositioned against the bone at the level of the alveolar crest. The site may be covered with adhesive foil or rubber dam and packed weekly for three weeks to ensure good protection. This operation may also be combined with mucogingival surgery and osseous recontouring.

Osteoplasty. — This consists of reshaping bone without removing supporting bone.⁶⁰ Osteoplasty can correct anatomic aberrations such as thickened marginal ledges, exostoses or tori. It is also part of the surgical treatment of intrabony pockets.¹¹

Access to the defect is obtained by one of the many mucogingival operations or sometimes by gingivectomy.¹⁰ The bony enlargements are reduced by grinding with round burs or diamond stones until a suitable shape is achieved. Ochsenbein^{61,62} suggests cutting a series of parallel vertical grooves in the bone with a round bur and removing the sections with

a mallet and chisel. In addition to reshaping the crests,⁶³ interradicular grooves may be made to simulate root prominences and provide spillways for the passage of food during mastication.

Ostectomy. — This is a reshaping of bone involving the removal of supporting bone.⁶⁰ Ostectomy can correct interproximal craters, inconsistent margins, hemisepta, furcation invasions and intrabony pockets. This operation is also used in the treatment of intrabony pockets, particularly those with wide shallow defects, or one- and two-wall pockets not amenable to reattachment. Access is usually gained through flap operations. Ostectomy is contra-indicated when cortical plates are thin or when little supporting bone is present.

In the treatment of interproximal craters the cortical plates on the buccal and lingual surfaces are first reduced with burs, files or chisels to create a convex interalveolar septum.⁵⁶ This often produces irregular marginal surfaces which must be thinned with burs. Ramping or grooving the bone from the base of the crater to one surface (often the palatal)⁶² usually reduces only one cortical plate and places the interalveolar septum on the margin of the other surfaces.^{34,56} In the mandible ramping may be slightly greater on the buccal surface because of better access.⁶⁴

In a hemiseptum the pattern of interproximal bone destruction is sometimes uneven; instead of a crater, the mesial or distal half of an interalveolar septum remains.¹¹ If an intrabony defect is associated with the hemiseptum, only the part of the hemiseptum coronal to the intrabony defect is removed. The hemiseptum is then reduced with small round burs to a thin layer of bone against the root. This thin layer is subsequently removed with curettes or a mallet and chisel.^{34,63}

Uneven resorption of buccal or lingual cortical plates can create an irregular alveolar crest — the inconsistent bony margin. Where this occurs the marginal bone on adjacent teeth is reduced with burs, stones or chisels.^{56,58,65} The object is to produce a bony margin with gradual undulations to which the gingiva can

adapt. Excessive bone removal is discouraged as this may weaken a tooth with otherwise good bony support. Extraction of such a tooth is preferable.

In the treatment of furcation invasions the marginal bone is removed from root surfaces and from mesial and distal interalveolar septa. This helps to establish a consistent bony margin to which the gingiva can adapt^{34,59} and an interradicular space which the patient can cleanse. Combined root canal therapy and root resection are necessary when there is considerable interradicular bone loss. This is termed hemisection.⁶⁶ It involves the removal (from molars) of the one or two roots which have suffered severe bone loss, leaving at least one good root. Following root canal therapy and obliteration of the roots to be used, the condemned roots and part of the crown are resected. The clinical crown is then contoured in relation to the remaining roots to provide a suitable abutment for a fixed prosthesis.¹¹ Hemisection is contra-indicated in teeth which cannot be treated endodontically, mobile teeth, teeth with fused roots or teeth which are easier to treat by exposure of a cleansable bifurcation.

Implants, Transplants and Grafts. — Numerous implant materials have been used to regenerate bone and restore normal osseous height.^{11,67-71} These substances fall into four categories: (1) autografts where the donor is also the recipient, (2) homografts between genetically dissimilar members of the same species, (3) heterografts between species, and (4) synthetic grafts of non-biological substances like plaster of Paris.

New bone formation occurs more readily if a matrix is provided in which vascularization can maintain osteogenesis. The matrix must be non-antigenic, non-perishable and easy to manipulate. It should provide osteogenic stimulation. Autogenous cancellous bone seems superior to all other implants.⁷² It has a large surface area for regenerative activity and some of the cellular elements may participate in osteogenesis. Furthermore, there is no problem of host rejection.

Success with implants, as in reattachment by curettage, depends on the num-

ber of osseous walls present as well as the width and depth of the pocket.¹¹ Implants can be effective in the treatment of intrabony pockets with two osseous walls and for defects with one osseous wall, although results in the latter situation are less predictable. Implants are also used in three-walled intrabony pockets where the orifice is very wide. They also aid in the filling in of furcation lesions.⁷² Implants are not used in shallow three-walled intrabony pockets, particularly those with a narrow orifice. Implants are also contra-indicated in furcation lesions and intrabony defects where tissue coverage of the operative site is not feasible.

First, careful soft tissue curettage, scaling, root planing, occlusal correction and temporary splinting, if indicated, are performed prior to gaining access to the bony defect. The incisions must be custom-designed to secure adequate access and permit closure and repositioning of the flap margins after placement of the graft. Split or full thickness flaps are elevated using reverse bevelled incisions on the buccal and lingual surfaces. If enough autogenous bone can be obtained by necessary osteoplasty and ostectomy, it is immersed in isotonic saline solution and then loosely packed into the defect. Edentulous spaces and the maxillary tuberosity regions can also be used as donor sites. The flaps are replaced and securely sutured. Dry foil and periodontic dressings are then placed over the operative site. Five days later the sutures are removed and a new protective dressing applied. The pack is renewed weekly for three to five weeks.⁷²

In the contiguous autogenous transplant, a modification of the autogenous bone graft, bone from an adjacent site is partially fractured into the defect rather than removed and then implanted into the lesion.⁷³ This operation is used for an intrabony pocket with one osseous wall adjacent to an edentulous ridge or septum which could serve as a donor site. It is contra-indicated when the donor site is too close to the antrum or mandibular canal to permit partial fracture of bone, when the donor site is too narrow for partial fracture and in three-walled intrabony pockets.

After adequately exposing the defect and donor site by flaps the teeth are scaled and planed and all granulomatous tissue is removed with curettes. A surgical chisel is placed a few millimetres to one side of the defect, making sure that the graft area is wide enough to avoid complete fracture of the tissue. The chisel handle is held parallel to the long axis of the teeth and the bevel of the blade is directed toward the defect. After a few light mallet taps the chisel penetrates the bone as far as the base of the defect. The chisel is withdrawn, turned and replaced in the bone so that the flat edge faces the defect. A rocking motion of the chisel handle should partially fracture the graft at its base and allow the bone to approximate the root. The flaps are then repositioned at the level of the alveolar crest and sutured. A periodontic dressing is applied over the entire site. Local application of an antibiotic is desirable. The sutures are removed after one week and the dressing is changed weekly until healing is complete.

GENERAL OBSERVATIONS

Periodontic surgery may not always result in a pleasing appearance. Its discomfort and possible dangers must be weighed against the patient's age, mental attitude, cooperation, particularly in terms of oral hygiene, general health and probable longevity. These factors may contra-indicate surgery in some cases.¹¹

The mouth is rarely restored to full health following periodontic surgery. The position of the teeth is often altered as a result of surgery, necessitating further occlusal correction. The patient may also need additional restorative, endodontic, prosthodontic or orthodontic treatment to achieve a completely functional and stable dentition.

The maintenance phase of periodontic therapy is equally essential to preclude any recurrence of the disease. A program of regular prophylaxis and periodic check-ups should be arranged with the patient. A disclosing rinse should be used at recall appointments to determine the standard of oral hygiene. Necessary im-

provements in the patient's home care should be suggested at this time. The patient must be made aware of his personal responsibility for maintaining the health of his mouth.⁷⁴

Though surgical techniques do not constitute complete treatment, their inclusion is often vital to the success of periodontic therapy. Their basic contribution is in the establishment of a periodontium which can be thoroughly cleaned by the patient and maintained in a healthy state. The neglect of oral hygiene and the dentist's failure to observe and remedy this situation invariably result in recurrence of the disease. On the other hand, the excellent results obtained by thorough treatment facilitate good oral hygiene practices which are the key to long-lasting results.

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Effect of injections of thrombin on blood coagulation and local haemostasis in rats

Thrombin, generally considered a procoagulant, actually stimulates the natural anticoagulant and fibrinolytic systems when sufficient quantities of this agent are introduced into the blood stream. This effect is illustrated by the prolongation of clotting and prothrombin times and the greater tendency to subsequent clot lysis in rats which received intraperitoneal injections of bovine thrombin. Subcutaneous injections of thrombin, on the other hand, diminished the bleeding time, and rapidly induced local haemostasis. Thrombin administration by this route may therefore prove useful for the control of postextraction bleeding in haemophiliacs.

La thrombine, que l'on considère généralement comme un procoagulant, stimule en fait les systèmes naturels anticoagulants et fibrinolytiques lorsque des quantités suffisantes de cet agent sont introduites dans le courant sanguin. On peut constater cet effet par la prolongation de la période thrombogène et de coagulation et par une tendance accentuée à la lyse des caillots chez les rats qui ont reçu des injections de thrombine bovine. Par contre, des injections sous-cutanées de thrombine réduisent la durée du saignement et provoquent rapidement une hémostase locale. L'administration sous-cutanée de thrombine pourrait donc se révéler utile pour contrôler les saignements à la suite d'extraction chez les hémophiles.

Circulating blood contains all that is needed to prevent, delay, promote, or accelerate coagulation. Fluidity is maintained by a self-adjusting equilibrium between procoagulants that accelerate coagulation and anticoagulants and fibrinolytic substances that retard coagulation.

Procoagulants, in general, are present in platelets and as inactive precursors in the blood. Most anticoagulants circulate freely or exist as inactive precursors ready to be activated by any abnormal increase of procoagulants.¹ This article describes the effects of intraperitoneal and subcuta-

ACTION OF THROMBIN

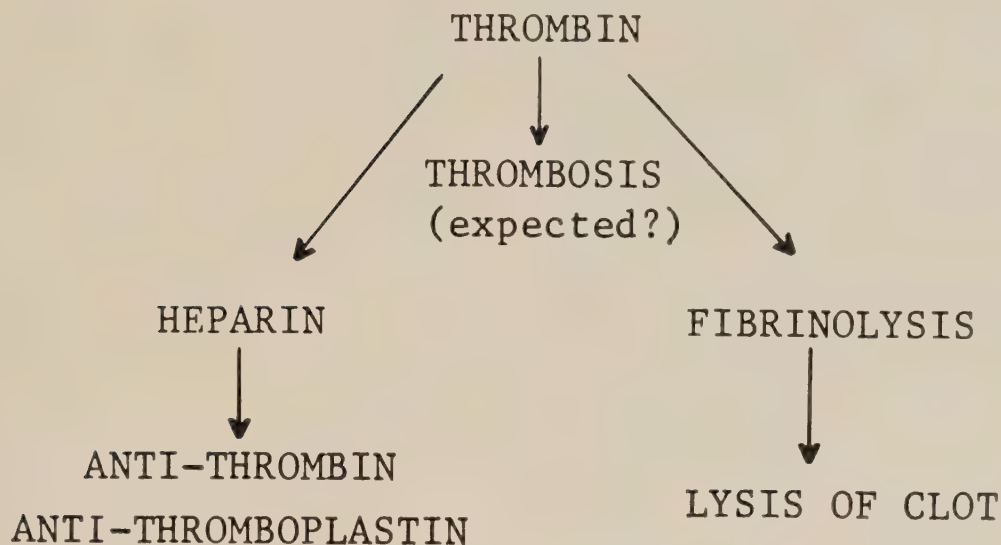


FIGURE 1 Diagrammatic representation of the activation of the anticoagulant (heparin or heparin-like substance) and fibrinolytic systems following parenteral injection of thrombin.

neous injections of thrombin on blood coagulation and local haemostasis in rats.

Injection of thrombin has always been considered potentially dangerous due to the risk of inducing intravascular clotting. But this does not necessarily happen.^{2,3} Intravascular thrombin can actually stimulate the natural anticoagulant and fibrinolytic systems to prevent thrombosis. According to Kudrjashov et al^{4,5} the anticoagulant system is of a reflex-humoral nature. The system is triggered experimentally by intravenous administration of moderate amounts of thrombin or thromboplastin. It can be activated in mammals (rats and rabbits)

and in certain amphibia (*Rana temporaria*). It can also be blocked by anaesthesia or by destruction of the medulla oblongata. The latter phenomenon reflects the level of closure of the reflex arc.⁶

Figure 1 suggests how the natural anticoagulant and fibrinolytic systems are activated following thrombin injection. According to this scheme moderate amounts of circulating thrombin do not produce the expected thrombosis. Instead, they trigger a protective anticoagulant mechanism by releasing heparin or heparin-like substance and also by activating the fibrinolytic system. Heparin inhibits thromboplastin generation and inacti-

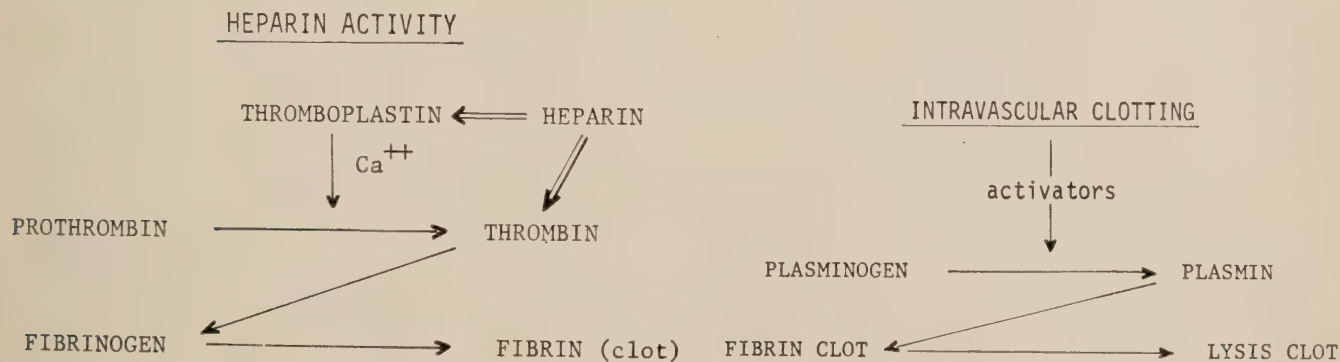


FIGURE 2 Mechanism of action of the two systems activated by thrombin. Left: heparin or heparin-like substance released in the circulation inactivates thromboplastin and thrombin. Right: following intravascular clotting, activators transform plasminogen present in blood into plasmin which dissolves the fibrin clot.



FIGURE 3. Anaesthetized rat on a wooden board. The chest wall shows the incisions made for the bleeding time determination.

vates thromboplastin already formed during the first phase of blood coagulation. It also possesses antithrombin potential and consequently affects the second phase of blood coagulation (Figure 2 left). Heparin, furthermore, interferes with platelet changes, activation of Hageman Factor and activation of prothrombin.⁷ The fibrinolytic system is triggered if intravascular clotting occurs in response to the thrombin. Clots in the circulating blood cause plasminogen to form plasmin, a potent fibrinolytic enzyme capable of rapid destruction of fibrinogen and fibrin clot (Figure 2 right).

Two different parameters were measured in the present study: (1) the effect of intraperitoneal bovine thrombin on blood coagulation (as reflected by changes in prothrombin time, silicone whole blood clotting time and lysis of clot); and (2) the effect of subcutaneous bovine thrombin on the bleeding time of normal and Warfarin-treated rats.

Bovine thrombin is a protein which also contains carbohydrate. It is sensitive to heat, acid, alkali and heavy metals that

tend to precipitate protein. Bovine thrombin is active between pH 4.3 and 10. Heat inactivation of the material begins at about 40°C.

MATERIAL

Sprague-Dawley (North West Rodent Company, Washington) white male rats weighing 300-400 Gm. were used. The animals were assigned at random to each individual group and kept in separate cages for the duration of the experiment. Test tubes, needles and syringes used for determination of the clotting time were siliconized with Desicote (Beckman Instruments Inc., Fullerton, Calif.). Simplastin (General Diagnostic Division, Warner-Chilcott), a thromboplastin extract containing calcium and sodium chloride, was utilized for prothrombin time determination. The rats were injected with powdered bovine thrombin (Parke-Davis) dissolved in physiological saline solution. They were fed powdered rat food mash (North West Mills & Feed Co., Edmonton) during the experiment. Neet (Whitehall Laboratories Ltd., Toronto), a lotion hair remover, was used to remove hair before the determination of bleeding time. Warfarin (Wisconsin Alumni Research Foundation, Madison, Wis.) was dissolved in distilled water and injected intraperitoneally to produce hypocoagulability of the blood.

METHOD

Prothrombin and Clotting Time.—Bovine thrombin was given intraperitoneally to groups of five rats on days 0, 2 and 4 of the experiment. Three different dose levels were utilized: 500, 750 and 1,000 units in 1 ml. of saline. The experimental rats were split into two sets. Blood studies were performed in one set of animals two hours after the thrombin injection on day 4. Similar studies were delayed to day 6 in the second set. A further group of rats who received no injections served as the control for this experiment. Injections of saline do not alter the clotting or prothrombin times;⁸⁻¹⁰ a

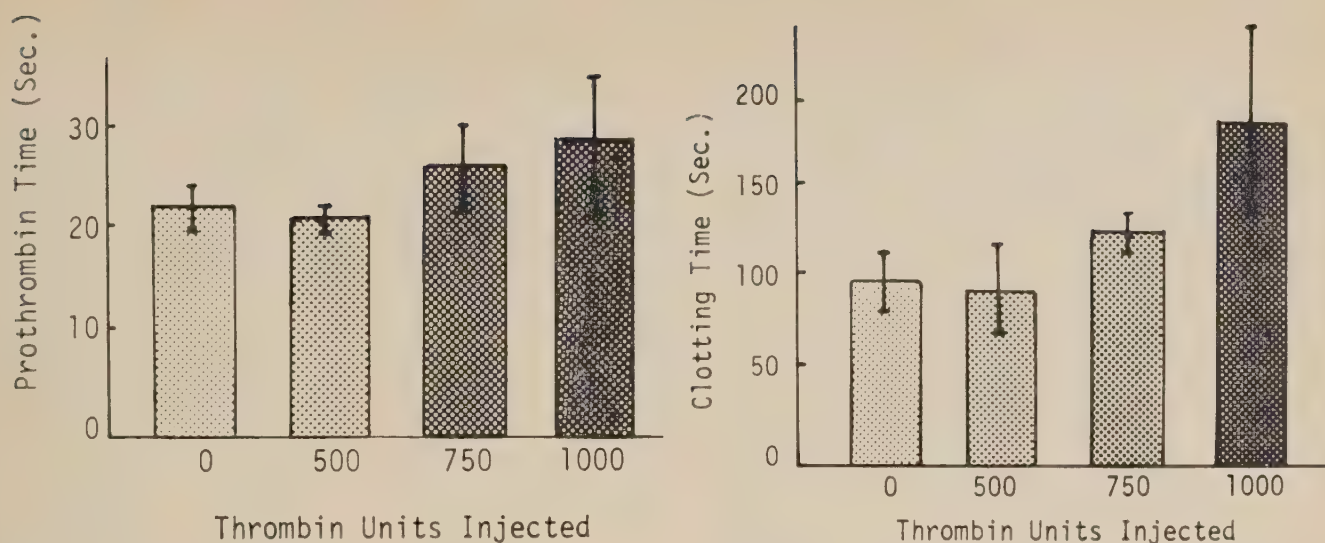


FIGURE 4 Changes in rat prothrombin and clotting times induced by three intraperitoneal injections of thrombin given on day 0, 2 and 4 of experiment. Blood studies were performed two hours after the last injection of thrombin. Left: mean prothrombin time $\pm$ S.E.M. Right: mean clotting time $\pm$ S.E.M.

control using saline intraperitoneally in lieu of thrombin was therefore omitted.

With the rats under ether anaesthesia, 1 ml. of blood was drawn by cardiac puncture into a syringe containing 0.1 ml. of 3.8 per cent sodium citrate. This sample was utilized for determining the prothrombin time, using Simplastin as the reagent according to a method described elsewhere.¹⁰ A 0.5 ml. sample of blood was also removed with a second siliconized needle and syringe for the determination of clotting time in siliconized test tubes at 37°C. Thereafter, the test tubes were immersed for five more hours in a water heater at 37°C to observe lysis of the clot.

Bleeding Time. — This test was performed on normal and Warfarin-treated rats. The latter received a daily dose of 0.2 mg./100 Gm. body weight of the drug intraperitoneally for three days prior to determination of the bleeding time. This was sufficient to produce a severe deficiency in the clotting mechanism. The animals' thoracic region was clipped with an electric clipper and treated with Neet two days prior to the determinations. A graded amount of trauma was inflicted with an automatic device capable of producing a cut of uniform dimension.¹¹ This produced an incision approximately 5 mm. deep and 10 mm. long in the thoracic wall (Figure 3). Under ether an-

aesthesia, at least three determinations were made on each rat. The mean was used for the final result.

When thrombin was injected subcutaneously to test its haemostatic activity on normal and Warfarin-treated rats, 125 units in 0.2 ml. of saline was given immediately after making the incision. Controls consisted of one group of rats who received no injection and another group who received 0.2 ml. of saline only. The subcutaneous injection of saline in lieu of thrombin was done in order to evaluate how the pressure of the liquid around the incision area would modify the bleeding time. The time lapse from the moment of the incision to the moment of haemostasis was then carefully observed. Thereafter, the prothrombin time was measured in all Warfarin-treated rats to determine the degree of hypocoagulability induced by the anticoagulant.

RESULTS

Figure 4 illustrates the effect ($\pm$ S.E.M.) of intraperitoneal injection of 0, 500, 750 and 1,000 units thrombin on prothrombin and clotting times. Differences were subjected to the 't' test using $p=0.05$ as the criterion. The mean prothrombin time increased in animals who received the two highest doses of thrombin, but the increment was not significant

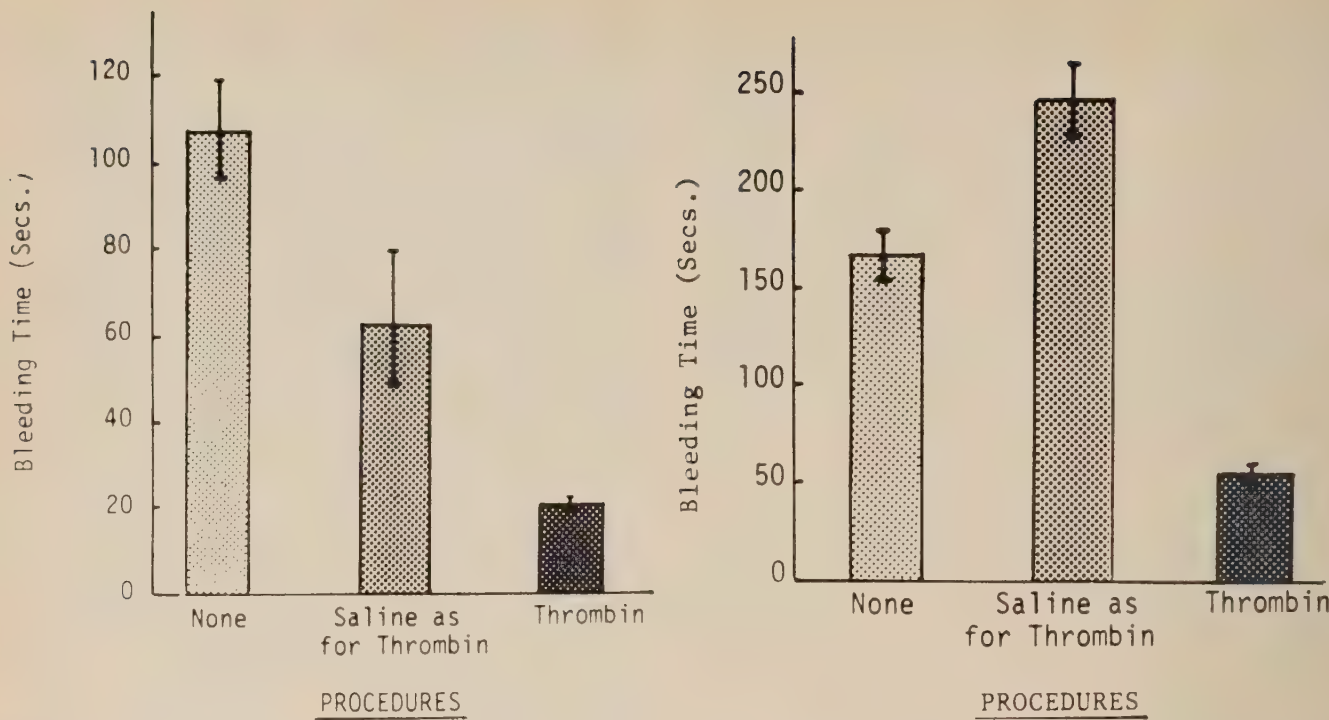


FIGURE 5 Haemostatic effect of thrombin injected subcutaneously following an incision in rats' lateral chest walls. Left: mean bleeding time $\pm$ S.E.M. in normal rats. Right: mean bleeding time $\pm$ S.E.M. in Warfarin-treated rats.

when compared with the untreated control group. The clotting time displayed a similar pattern (Figure 4B) with the groups subjected to 750 and 1,000 units of thrombin giving a significantly higher value than the control group ($p=0.05$). Coagulation studies (clotting and prothrombin times) were within normal ranges when performed two days after the final injection of thrombin.

Table 1 shows the percentage of lysis in clots from rats subjected to different levels of thrombin.

Figure 5 illustrates the effect ($\pm$ S.E.M.) of subcutaneous thrombin on

bleeding time in normal and Warfarin-treated rats. Thrombin significantly decreased the mean bleeding time in normal animals ($p=0.0005$). Saline had a similar effect ($p=0.02$), but the resultant bleeding time was significantly longer than in thrombin-treated animals ($p=0.02$). Thrombin also reduced the bleeding time significantly in Warfarin-treated rats ($p=0.0005$). Saline, however, had the opposite effect ($p=0.001$).

In Warfarin-treated animals the prothrombin time exceeded 120 seconds, whereas in normal rats it was 16 seconds. Rats which received intraperitoneal

TABLE 1 Relative frequency of clot lysis within two hours of clot formation in rats. Three intraperitoneal injections of thrombin were given at different dose levels on day 0, 2 and 4 of the experiment. In experiment 1, blood clotting time was measured two hours after last injection. In experiment 2, blood clotting time was measured two days after last injection.

Thrombin units i.p.	Samples showing lysis			
	Experiment 1		Experiment 2	
	N	%	N	%
0	0/4	0	0/4	0
500	1/4	25	3/4	75
750	2/5	40	3/4	75
1,000	2/3	67	2/4	50

thrombin were carefully observed for clinical reactions following each injection. There were no convulsive movements, respiratory changes, tachycardia, excessive salivation, spontaneous defaecation or urination which could indicate a systemic reaction to thrombin. The rats were kept for 30 days after this procedure and were then used to test the haemostatic effect of subcutaneous thrombin. Each rat received three injections, one in each incision area. No local or general reactions attributable to sensitization were observed.

DISCUSSION

Intraperitoneal injection of thrombin in rats induces hypocoagulability rather than hypercoagulability of the blood. This phenomenon, observed in blood samples examined two hours after the last intraperitoneal injection, is directly related to the dose of thrombin administered. Clotting and prothrombin times resume normal values when they are measured two days after the last intraperitoneal injection. Thrombin-injected animals, however, display more frequent clot lysis within two hours of clotting regardless of the time lapse since the last injection (Table 1). Evidently, the clotting factors revert to normal within 48 hours of the injection of thrombin, whereas the lytic factors (plasmin) persist for at least two days.

Hypocoagulability of the blood induced by thrombin or thromboplastin was reported by Wooldridge in 1886.¹² He described how intravenous injections of tissue extract cause intravascular clotting, followed by a period of hypocoagulability and a tendency to bleed. In recent dog experiments Brinkhous and Geratz¹³ have shown that intravenously administered tissue thromboplastin or thrombin diminishes the clotting factors (fibrinogen, platelets and anti-haemophiliac factor) and renders the blood hypocoagulable. The levels of blood clotting factors remained unaltered when they injected thromboplastin into haemophiliac and dicoumarol-treated dogs. These phenomena did not occur when they injected thrombin.¹⁴

Subcutaneous injection of thrombin induces local haemostasis in normal as well as Warfarin-treated rats. The bleeding time (time elapsed to effect haemostasis) is greatly influenced by the injection of thrombin. The effects of subcutaneous saline are less easy to explain. Perhaps the injected fluid may exert sufficient pressure to arrest bleeding from small vessels in the normal rats. But why it prolongs the bleeding time in Warfarin-treated animals is a question which defies explanation.

Apart from its action on fibrinogen, thrombin affects the entire haemostatic mechanism in various ways.¹⁵ It can, for example, agglutinate platelets in a given area of the vascular bed.¹⁶ Platelet agglutination at the site of vessel rupture is a very important initial step in haemostasis.¹⁷

The experimental results in this paper suggest that subcutaneous injection of thrombin for local haemostasis may be highly advantageous rather than harmful since the possibility of causing thrombosis by this route is extremely remote. This conclusion is supported by other observers^{2-6, 12-14} who injected procoagulants directly into blood vessels and failed to produce clinically significant thrombosis. The subcutaneous administration of thrombin could aid in the management of postextraction bleeding in haemorrhagic patients, mainly haemophiliacs. Bleeding in haemophiliacs occurs most commonly from small vessels around the marginal gingiva traumatized during tooth extraction. It is difficult to keep haemostatic material in proximity to such localized points of bleeding. They may, therefore, become the source of major blood loss.^{18, 19} Bovine thrombin, as powder or in solution, is a powerful enzyme capable of producing an instant clot when exposed to fibrinogen *in vivo* as well as *in vitro*. However, both forms are inconvenient as local haemostatic agents because they are difficult to affix to a bleeding area.²⁰

Thrombin injected into the tissue around the bleeding site would (1) convert fibrinogen present in the fresh flowing blood into an external fibrin clot; (2) favour concomitant platelet agglutination as well as adhesion and the formation of

platelet plugs or 'white thrombi,' and (3) facilitate lysis of platelets which release a powerful vasoconstrictor — 5-hydroxy-triptamine (serotonin) — and several clot promoting factors that initiate and stimulate the chain of coagulation events.¹⁵ The formation of the platelet plug and subsequent localized vasoconstriction are very important factors in achieving haemostasis in capillaries as well as in small blood vessels.²¹

Thrombin's effect on platelets and its ability to convert fibrinogen into fibrin characterizes it as a superior clot promoting agent. The possibility of human sensitization or allergic reaction from the repeated use of bovine thrombin seems unlikely.²² A clinical study involving many patients who were treated with bovine thrombin has shown that this theoretical possibility does not, in fact, exist.²³

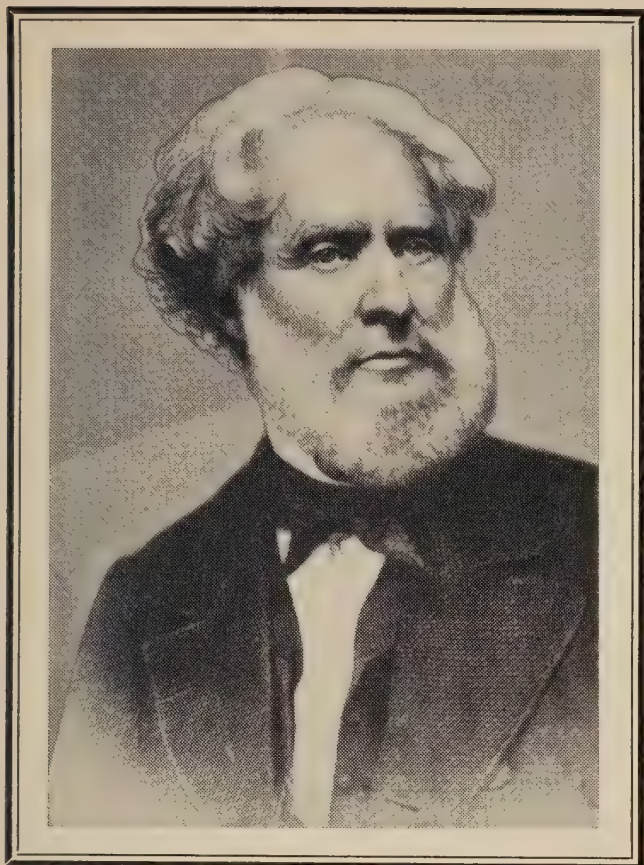
SUMMARY

Sprague-Dawley rats were injected intraperitoneally with three different doses of bovine thrombin to determine its effect on blood coagulation. Untreated rats served as the control. The mean clotting and prothrombin times were consistently prolonged in proportion to the dose of thrombin administered to the experimental animals. Subsequent lysis of the clot, reflecting fibrinolytic activity, was also more frequent in the experimental rats. Subcutaneous injection of thrombin caused local haemostasis in normal as well as Warfarin-treated rats. The bleeding time was very significantly shortened by the subcutaneously administered thrombin. There was no evidence of thrombin-induced sensitization or allergic reaction in any of the animals throughout the experiments. The subcutaneous injection of thrombin may prove an effective means of inducing local haemostasis. The possibility of producing thrombosis by this route is extremely remote.

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**Eleazar Parmly:
Montreal schoolboy
and dental student**

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The purpose of this article is to establish Canada's connection with one of the most influential dentists that North America ever produced.

Eleazar Parmly was born March 13, 1797, on a farm near Braintree, Vermont. The family was not prosperous and after a few years moved to another farm near the shores of Lake Champlain. They fared no better here, the soil being sandy and full of rocks. Schooling was spasmodic but through the kindness of his father's friend, Major Levi Mower, Eleazar was sent to Montreal at the age of 12 to attend a 'good school.'¹ This was probably the Classical and Mathematical School of which Alexander Shakel was the headmaster. Andrew Ferdinando Holmes, whose name is commemorated by the Holmes Gold Medal, attended this school at the time and may well have been a schoolmate of Eleazar.

The outbreak of the 1812-14 war caught Eleazar in Montreal. To support himself he went to work on a newspaper, Nahum Mower's *Canadian Courant*, as a compositor, reporter and general assistant. Somewhat later he learned that he was needed

on the parental farm; so he walked home, covering a distance of nearly 100 miles and successfully negotiating the intervening Canadian and American army outposts. For the next little time he helped on the family farm.¹

In 1814 there was a vacancy for a school teacher near his home. Eleazar was examined and obtained the position. His pupils that year did well, as he said in rhyme many years later:¹

"No happier group was ever seen
Than came to me at seventeen.
Tho' many far my senior were,
All strove to do their duty there;
And when our winter's term did end,
In each loved pupil, I'd a friend."

There was talk of a raise in pay and engagement for another year; but in 1815, when his brother Levi Spear Parmly began to practise in Montreal, the 18 year old Eleazar set out to join him as a student assistant.^{1,2}

Eleazar was first employed in carving and manufacturing teeth from the tusk of

the sea-horse (walrus).² Later that year the brothers went to Quebec where, at 2 rue du Palais, Levi published a book titled *Summum Bonum*.³ It was Levi's 25th birthday — August 29, 1815. Though he had started in dentistry scarcely three years earlier, he produced a delightful little book of 65 pages containing the first Canadian price list for various dental services and outlining the importance of teeth and why they should be saved. Considerable space was devoted to cleanliness of the teeth. This concern with dental hygiene later became the trade mark of 18 dentists, 13 bearing the name Parmenter and five related by marriage. Levi did not originate the view that tooth decay starts from the outside of the tooth, but he was the first to assert it in print in North America. In doing so, he crossed swords with the celebrated John Hunter who had attributed decay to systemic causes and claimed that the lesion progressed from the centre of the tooth toward the enamel. When Eleazar published John Hunter's essay on *Natural History of the Human Teeth* 25 years later, the accompanying notes make it quite clear that Levi's earlier pronouncements failed to convince all of his contemporaries that Hunter could be in error.

While in Quebec the brothers saw a front tooth beautifully restored with gold. This was reputed to be the work of a Mr. Waite of London, but they had no idea of how the gold was prepared or inserted or how the lustrous finish was achieved. Their practice, like that of most of their contemporaries, consisted of extracting with the turnkey, cleaning with scrapers, separating teeth and removing caries with files, filling with tin foil, carving artificial dentures from ivory and bone, making individual teeth from the teeth of cattle and attaching the latter as well as human teeth to gold and silver plates bent to something like the required form.^{2,4}

We do not know how long Levi remained in Quebec. We next hear of him from Philadelphia where, in 1816, he published another book, *Practical Guide to the Management of the Teeth*. He went to London the following year. Eleazar did not stay long in Quebec either. In 1817 he went home to help his parents move from

Lake Champlain to Perry, Ohio. He was destined never to return to Canada.

At this point Eleazar embarked on a period of extended travel through the United States. He later explained that he wished to earn sufficient money to go to Europe and learn the skills which produced those wonderful stoppings of Mr. Waite, the marvellous mineral teeth of France and the dentures with a swaged gold base from London.⁴

Along the way Eleazar encountered numerous examples of first class dentistry. They whetted his curiosity and increased his determination to find out how such marvels were performed. Among these were the 'mineral' (porcelain) teeth which he observed at Lexington, Kentucky, in the mouth of a French gentleman newly arrived in America. These seemed like a vast improvement over the sea-horse and cattle teeth that Eleazar used. In Lexington he also prevailed on a silver plater to make him some foil from gold coins. This material, of the same thickness as tin foil, Eleazar began to use for making fillings. When he saw one of these early gold fillings again in 1839 it was apparently still satisfactory. Pursuing his journey to New Orleans, Eleazar saw for the first time a gold plate that had been swaged on a model in London.^{2,4}

Eleazar was profoundly impressed by the new techniques and materials which he encountered during these travels; the evidence is reflected in his own words: "The few operations which I had thus an opportunity of seeing executed in a masterly manner, excited in my mind an ambition which I should like to feel in this life again."^{2,4}

He came to New York City early in 1819. There he met Miss Anna Maria Valk Smith, the lady he was to marry eight years later. Eleazar and Anna were at once attracted to each other, but were soon parted through the death of her father. Anna went south and Eleazar, not expecting to see her again, took ship for Europe.⁴

In London he procured all the books on dentistry then available. These described the benefits expected from fine dental work, but failed to tell him what he wanted to know — how to perform fine

dental work. Eleazar also called upon London's most prominent dentists of the day, then proceeded to Paris where he paid for a course of instruction given by J. F. C. Maury. Late in 1819 Eleazar returned to London and practised again with his brother Levi for some six months. In later years he was to speak appreciatively of Mr. Gray, of Old Burlington Street, whom he described as probably the leading mechanical dentist of the world, and of Mr. Waite whose gold stoppings were the best he saw anywhere.^{2,4}

Levi, meanwhile, had become a celebrity in London, doubtless on account of his fine appearance and his novel ideas about tooth decay. Much of this acclaim was shared by Eleazar who stayed on after his brother's departure from London. There is still extant a testimonial to Eleazar Parmly, dated at London in January 1820 and signed by Sir Astley Cooper and Sir Anthony Carlisle, surgeons to King George IV. The following two paragraphs in this document attest to Eleazar's reputation:

"In performing the various operations belonging to his vocation, we know of none who surpasses him in skill; and have equal reason to believe his mode of treating disorders of the Teeth, and directions for their management, preferable to any hitherto adopted.

"Mr. Parmly has been some time practising with his brother, whose discovery of the origin and prevention of caries of the teeth, together with his superior method made of treating their diseases, has justly gained him much celebrity."

Notwithstanding their undoubted ability as dentists, the brothers obviously did not forget to polish their apples. The names of most of the people they mention in London can still be traced: dentists like Bell, Tomes, Nasmyth, Waite, Gray and Cartwright; physicians and surgeons like Sir Astley Cooper, Sir Anthony Carlisle and Thomas Hare; Benjamin West the artist; and Basil Montagu, later to be a famous Queen's Counsel.^{2,4}

The first edition of Eleazar's *Disorders and Treatment of the Teeth* was published in London in 1821. That year he fell desperately ill, fearing he would die.

Fortunately, he recovered and later that year took a sea voyage to New York in order to regain his health.⁴

Late in 1821 Eleazar and Levi were practising together again at 297½ Broadway — but not for long. Shortly thereafter Levi left again, this time going to New Orleans where he made his home for the next 30 years except for periodic interludes of practice in Matanzas, Cuba.¹

Eleazar was not immediately successful in New York, probably because he lacked his brother's charm and self-confidence. But he became sufficiently busy the next year to take in a younger brother, Samuel W., as a student assistant. In this Eleazar set a new pattern; unlike his contemporaries, he kept his student assistants for several years rather than a few months. In 1829 Eleazar's cousins Jahail and Ludolph also joined him as student assistants, Jahail remaining as a 'prosthetic specialist' for the next 10 years. Until 1840 Eleazar always had a relative in training with him.^{2,4}

In 1824 Eleazar became engaged to marry John Jacob Astor's third and youngest daughter, Eliza. Mr. Astor was apparently bent on marrying Eliza into the European nobility. The engagement was therefore kept secret from everyone but Mrs. Astor and Eleazar's friend, Solyman Brown. When Mr. Astor eventually learned of his daughter's engagement to Eleazar, he took Eliza abroad and married her to Count Vincent Rumpff of Switzerland. Mrs. Astor opposed this match, being strongly in favour of Eleazar. In fact, she wrote Eleazar from Paris, asking him to come over and marry Eliza despite the father. Eleazar went, but arrived too late, just in time to bid an affectionate farewell to the newly wed Countess Rumpff on the eve of her departure for Switzerland with the Count. After her return to New York Mrs. Astor gave the disappointed suitor \$1,000 to reimburse him for the expenses of his trip and his business losses while making it. The Countess Rumpff died a few years later.^{4,5}

In 1827 Eleazar married Anna Marie Valk Smith, their acquaintance having been renewed after a separation of some seven years. The couple's married life of nearly 30 years proved an ideal one. She

was an heiress, her deceased foster-father having been a wealthy broker.⁴

Solyman Brown had been a clergyman and teacher for 10 years when a throat affliction caused him to look for other means of gaining a livelihood.^{4,6} In 1833 he entered the Parmly household to study dentistry and to perfect the manufacture of porcelain teeth in collaboration with Eleazar. It was there that he wrote the poem *Dentologia*⁷ which was published in 1833 with notes by Eleazar. Five years later Brown wrote *Dental Hygeia*, a poem in blank verse on the health and preservation of the teeth.

One brother, one son, three nephews, three cousins and two others connected by marriage had the benefit of Eleazar's professional instruction and association. The only person outside the family whom he received as a student assistant was Solyman Brown; Dunning, a later associate, had already practised in Ithaca before he joined Eleazar.

In 1834 the notorious Crawcour Brothers came from London to New York with their Royal Mineral Succedaneum as they called amalgam. Eleazar and many of the better practitioners immediately opposed the introduction of this new material. This attitude was hardened by the Crawcours' ephemeral success, doubtless aided by their blatant newspaper advertisements. This led to the organization of the world's first dental society, the Society of Surgeon Dentists of the City and State of New York, which held its first meeting on December 3, 1834. Eleazar Parmly became its first president and Solyman Brown the first corresponding secretary. The constitution pledged that the members "will associate together for the purpose of improving the character and increasing the usefulness of our profession." Unfortunately, Eleazar thought the Society could best achieve this objective by prohibiting the use of Royal Mineral Succedaneum. The more prosperous practitioners gathered around Eleazar and supported his cause, but at no time did they constitute a majority of the entire profession. They did, however, number more than half of the members of the Society, thereby forcing out those who favoured amalgam. Eleazar's uncompromising attitude foredoomed the Society

although it lingered on until August 1840 when a national society was formed.^{6,7}

The world's first dental journal, the *American Journal of Dental Science*, was published in June 1839. The publishing committee comprised Eleazar Parmly, E. Baker and Solyman Brown. Several individuals subscribed for 20 copies apiece to ensure the financial success of the first issues. Chapin Harris and Parmly subscribed for 40 copies; these were bought back by the magazine when subscriptions began to arrive in large numbers. Editorially, Eleazar's name is still coupled with that of Chapin A. Harris, but the editorial work for the first volume of this Journal was actually done by Harris and Brown.⁶

Acting for the Society, Eleazar also tried to establish a chair of dentistry at a medical school. He might have succeeded had his fellow dentists been willing to devote sufficient time to teaching without remuneration. Finally, an independent dental school was proposed and in February 1840 the Legislature of Maryland chartered the Baltimore College of Dental Surgery with Chapin A. Harris as head. The New York dentists raised some of the money for the new school; the sum of \$1,300 is mentioned, of which Eleazar contributed \$100.⁷

Internal disputes continued to plague the Society of Surgeon Dentists of the City and State of New York and greatly diminished its effectiveness. But, the bitter struggle over amalgam had one beneficial result: it focused public attention upon the quality of dental fillings so that by the end of the Amalgam War people were able to obtain gold foil and amalgam fillings that were far superior to anything obtainable when the contest began in 1834.⁶

In 1840 Eleazar received an honorary MD degree from Warsaw University in Canton, Illinois. That year the newly formed American Society of Dental Surgeons also conferred its Doctor of Dental Surgery diploma upon him as upon all who attended its first convention. Eleazar was again one of the organizers of this new Society, being its original second vice-president and serving on its committees. He became first vice-president in 1841 and served as president from 1844 to 1853.⁷

Eleazar also embroiled the American Society in the conflict over amalgam. He branded use of the material as malpractice. Supporters of amalgam were expelled and a unanimous vote was cast condemning the material. This crippled the Society until the question was reopened in 1850 and the anti-amalgam pledges were rescinded.⁷

Eleazar's interest in the first dental school went much deeper than his monetary contribution. His son studied there; he gave the address at graduating exercises from 1847 to 1852; and he was its provost from 1848 to 1852. In 1842 Eleazar became one of the first to receive an honorary DDS from the Baltimore College of Dental Surgery.

Though not as prolific a writer as his brother Levi, Eleazar was nevertheless a talented speaker. He gave addresses at several dental conventions and graduating exercises. On at least two occasions his speeches were given in rhyme. This is not to say that Eleazar eschewed the pen. His *Disorders and Treatment of the Teeth*, first published in London in 1821, was twice reprinted. He also contributed notes to Brown's *Dentologia* published in 1833. A new edition of John Hunter's *Natural History of the Human Teeth*, with accompanying notes by Eleazar Parmly, was reprinted as a supplement to Volume 1 of the *American Journal of Dental Science*. In these notes Eleazar challenged Hunter's theories about the inorganic nature of teeth and the internal origin of dental caries.⁸ The first issue of the *Journal* in June 1839 also contained Eleazar's article on a "Remarkable Case of Osseous Union of the Teeth." And finally in 1867 he published a 600 page book of rhymes about his earlier travels. Titled *Thoughts in Rhyme*, this work was distributed privately to his friends and relatives.⁵

Eleazar had already travelled extensively in America and back and forth across the Atlantic before 1825 when such journeys were, to say the least, arduous and difficult. In 1854-55 he again left for Europe, this time accompanied by his wife and three unmarried daughters, leaving his practice in the charge of his son Ehrick who was assisted by Dunning.

He made another quick journey across the Atlantic in 1856 when a daughter died in Paris. And in 1862 he spent several months in France and Italy.

Eleazar met many distinguished people during his European travels. Poets, priests, artists and princes were his hosts and he, in turn, entertained them. At home he was familiar with President Lincoln and twice went to Washington in 1863 and 1864 to drive about the city in the President's company.⁴

Eleazar retired in 1866 from active practice. But even in retirement he remained influential, serving as the first president of the New York College of Dentistry and as emeritus professor of the College's Institute of Dentistry in 1866-69.³

He died of pneumonia at his city residence, 19 West 38th Street, on December 13, 1874.

The best practice in New York City, a fortune inherited from his wife, and very profitable real estate investments combined with habits of frugality made him the wealthiest dentist his country had known to that time.³

Eleazar Parmly was one of the fathers of dentistry as a profession. Among those who surpassed him in scientific attainments, none had the requisite wealth and social position and none used it for the elevation of dentistry. This former Montreal schoolboy and dental student may well be esteemed one of the truly great dentists in history.

1. Parmly, Eleazar. Address to the graduating class of the Baltimore College of Dental Surgery, at its seventh annual commencement, February 1847. *American Journal of Dental Science* 7: (1st series) 300, June 1847.
2. Idem. Introductory address, third annual meeting of the American Society of Dental Surgeons held in the city of Boston 19-21 July 1842. *American Journal of Dental Science*, Vol. 3, (1st Series) No. 1: 1, 1842.
3. Parmly, L. S. *Summum bonum*. Quebec, 1815.
4. Brown, L. P. The greatest dental family. *Dental Cosmos* 65:251, 363, 482, 1923.
5. Parmly, Eleazar. *Thoughts in rhyme*. New York, Halman, 1867.
6. Brown, L. P. New light on dental history. *Dental Cosmos* 62:936, 1920.
7. Brown, Solyman. *Dentologia: a poem on the diseases of the teeth, and their proper remedies*. With notes by Eleazar Parmly. New York, 1833. (Available from Henry Schuman Rare Books Ltd., New York)
8. Hunter, John. *The natural history of human teeth*. Notes by Eleazar Parmly. New York, 1839.

1414 Drummond Street

dentistry in the news

Canada and the Provinces

Committee on Dental Auxiliaries Formed

The formation of an ad hoc committee to study all aspects of dental auxiliaries was announced June 13 by National Health and Welfare Minister A. J. MacEachen. The committee was initiated by the Advisory Committee to the Minister on Dental Health and formed with the cooperation of the Canadian Dental Association.

The action arose from a CDA proposal for an independent investigating committee on auxiliary dental services (1965 *Transactions*, p. 98). The recommendation was made to counter a Hall Commission proposal calling for a Dental Auxiliary Advisory Training Committee appointed by the Department of National Health and Welfare.

The ad hoc committee, headed by Chief Justice Dalton C. Wells of the Ontario High Court, will study all aspects of dental auxiliaries, especially their possible contribution in helping to achieve better dental health for Canadians.

Committee members nominated by the CDA to represent private practice are J. F. Reid, North Vancouver, BC; M. A. Kamienski, Scarborough, Ont.; J. G. Belanger, Montreal; and C. E. Dexter, Halifax.

Other members are:

C. W. B. McPhail, assistant dean, College of Dentistry, University of Saskatchewan, Saskatoon, nominated by the Association of Canadian Faculties of Dentistry; and

M. A. Hunt, director, Division of Postgraduate Dental Education, Faculty of Dentistry, University of Toronto, nominated by the Canadian Society of Public Health Dentists.

Nominated by Chief Justice Wells is Mr Cleve Kidd, executive vice-president, Canadian Airline Pilots Association,

Montreal, representing Canadian consumers.

Other members are:

J. D. W. Cameron, Peterborough, Ont., formerly deputy minister of health, Department of National Health and Welfare, currently president of the Victorian Order of Nurses, and representing the broad field of public health; and

Marjorie Jackson, director, Division of Dental Hygiene, University of Toronto, representing dental auxiliaries.

Ex officio members of the committee are J. N. Crawford, deputy minister of national health, and R. A. Connor, chief of the Dental Health Division, Department of National Health and Welfare.

The Association

Distribute New CDA Television Filmlet

A new 60-second sound colour television filmlet produced for the Canadian Dental Association, in English and in French, will be distributed August 15 to Canadian television stations. Titled "The Lion and the Mouse," it features the King of Beasts dangling from a rope trap, unable to free himself because of poor teeth. He is rescued by the mouse who has looked after his teeth and eaten the right foods. The stations have been asked to start showing the filmlet when children return to school right after Labour Day.



Science Fair Winners Honoured by CDA

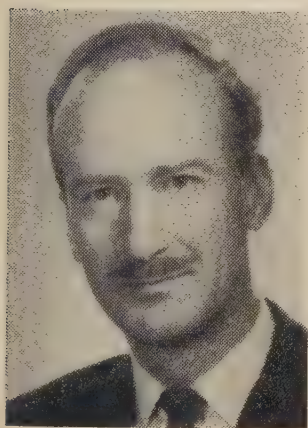
Judy Blasco, a Grade 13 student from Lindsay, Ont., and John Janis, a 16 year old Perth, Ont., student who is in Grade 11, have won the two Canadian Dental Association awards given at the seventh Canada-Wide Science Fair held at the University of British Columbia, Vancouver, May 9-11.

The Canadian Dental Association is one of the sponsors of the Youth Science Foundation which promotes extra-curricular science activities and organizes the annual fair. This year's selections were made on behalf of the CDA by G. F. Copithorne of North Vancouver.

Canadian Dental Schools

Five New Appointments at Western U

Dean W. J. Dunn of the Faculty of Dentistry, University of Western Ontario, has announced the following new full-time appointments effective July 1:

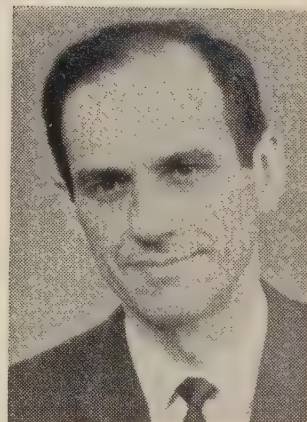


W. S. Hunter

W. S. Hunter has been named professor and chairman of the Division of Orthodontics. He is a 1950 graduate of the University of Toronto. Dr. Hunter is currently an associate professor of dentistry at the University of Michigan, Ann Arbor, where he earned MSc and PhD degrees in 1955 and 1959. During 1965-66 he was acting chairman of the Department of Orthodontics at the Université de Montréal.

B. P. Martinello, a 1955 graduate of the University of Toronto, is associate professor in the Division of Community and Preventive Dentistry at the University of Alberta's Faculty of Dentistry. He will be associate professor and chairman of the Department of Social Dentistry at UWO. Dr. Martinello also holds a diploma in dental public health from the School of Hygiene at the University of Toronto. Following several years of private practice after graduation, he became dental director of the Brant County Health Unit in 1962 and regional dental director of both the Brant and Wentworth County Health Units in 1964. Dr. Martinello was appointed director of the Sturgeon Health Unit Area in Alberta in 1965 and during 1967 he served as part-time dental officer while on the staff of the University of Alberta.

B. P. Martinello



K. H. Wright

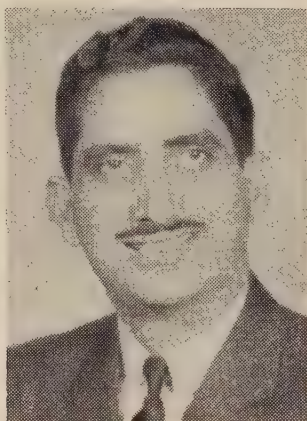
K. H. Wright has been named assistant professor in the Department of Oral Medicine. He earned a bachelor of commerce degree from McGill University in 1955, and in 1966 obtained a DDS degree from the same university. He is now taking a diploma course in periodontics at Toronto's Faculty of Dentistry.

K. B. Petersen, a native of Denmark, joins the UWO Department of Oral Medicine as assistant professor. Dr. Petersen graduated from the Royal Danish Dental College, University of Copenhagen, in

1950 where he has been a part-time teacher in the Department of Periodontics as well as conducting a private practice since 1956.



K. B. Petersen



B. J. Zulgar-Nain

B. J. Zulgar-Nain will also be an assistant professor in the Department of Oral Medicine. He is a native of Pakistan and earned his bachelor of dental surgery degree at the University of Punjab in Lahore. Since 1963 he has been a Fulbright fellow and graduate student at the Eastman Dental Centre and the University of Rochester School of Medicine, Rochester, NY.

**Dr. Gardner, UWO Professor,
Appointed to Tumour Registry**

D. G. Gardner, associate professor of pathology at the Faculty of Dentistry, University of Western Ontario, London, was recently appointed to one of the consultant panels of the Canadian Tumour Registry of the National Cancer Institute of Canada. Pathologists submit diagnostic problems to the Canadian Tumour Registry requesting that slides be prepared and sent to members of the appropriate consultant panel for an opinion. The panel to which Dr. Gardner has been appointed deals with tumours of the buccal cavity, pharynx, salivary glands and respiratory system including pleura and mediastinum. Dr. Gardner is reportedly the first oral pathologist to serve on a panel of the Canadian Tumour Registry.

International Items

**Jamaica Dental Meeting
Jan. 26-Feb. 1, 1969**

Canadian dentists have been invited to attend the Fifth National Convention of the Jamaica Dental Association January 28-February 1, 1969. The meeting will be held at the Sheraton Kingston Hotel in Kingston, Jamaica. Further information may be obtained from D. S. Vincent, chairman of the Convention Committee, Jamaica Dental Association, PO Box 19, Kingston 5, Jamaica WI.

Dental Organizations

**Ontario Dentists
Elect Dr. Chapman**

G. K. Chapman of Fort Erie was elected president of the Ontario Dental Association when that organization held its annual meeting in Toronto May 12-15. He succeeds W. J. Spence of Toronto.

Born in Mount Forest, Ont., Dr. Chapman graduated from the Royal College of Dental Surgeons of Ontario in 1924. He is a former president of the Niagara Peninsula Dental Society and the Welland County Branch of the Canadian Mental Health Association.

H. N. Beach of Ottawa was named president-elect. Other members of the Executive Council are D. C. Clee and W. L. Heaslip, Toronto; I. Hrabowsky, St. Catharines; L. J. Schiller, Windsor; W. C.



G. K. Chapman



During his April 8 visit to Montreal, CDA Past President W. P. Munsie met with officials of the city's three dental societies and the College of Dental Surgeons of the Province of Quebec, presented a certificate of accreditation to the dental clinic of St. Mary's Hospital, attended a civic reception at the city hall, gave radio and press interviews and addressed the Montreal Dental Club. The picture above shows Dr. Munsie at the civic reception. Present also were P. C. Staples, past president, Montreal Dental Club; H. L. Mussells, CDSPQ governor; John Lynch-Staunton, pro-mayor of Montreal; Mrs. G. D. Armstrong; Marcel Hébert, public relations director, Montreal Dental Club; Mme Marcel Hébert; Mrs. P. C. Staples; and G. D. Armstrong, Montreal Dental Club president. In the picture on the right, Mr. Lynch-Staunton and Dr. Hébert watch approvingly as Dr. Munsie signs the Golden Book of Honour in the city hall.



Deacon, Ottawa; and G. P. Copeland, Sudbury. K. F. Pownall, Toronto, is secretary-treasurer.

PEI Dentists Elect Dr. Stewart

Harold Stewart of Kensington was recently elected president of the Prince Edward Island Dental Association. Named with Dr. Stewart were O. E. Dalton,

Summerside, vice-president; G. D. Barrett, Charlottetown, secretary-treasurer; and A. L. MacIsaac, Charlottetown, PEI representative to the CDA Board of Governors.

Dr. McCarten Heads Winnipeg Assn.

R. J. McCarten was recently elected president of the Winnipeg Dental Association.



CDA Past President W. P. Munsie (right) presented a certificate of accreditation April 18 to Sister M. Melanie, executive director of St. Mary's Hospital, Montreal. Looking on is Marcel Hébert, director of the hospital's dental clinic.

He succeeds S. M. Borden. Others named with Dr. McCarten were: E. G. Derrett, vice-president; L. Karr, clinic chairman; W. W. Shortill, assistant clinic chairman; and W. F. Campbell, secretary-treasurer.

Alberta Dentists Elect Dr. Mandin

L. G. Mandin of St. Paul was installed as president of the Alberta Dental Association on May 4. He succeeds A. H. Lane of Edmonton. Other officers for the coming year are A. D. Sparrow, Calgary, vice-president; and G. E. Decker, Edmonton, secretary-treasurer.

Economics

Alberta Prepaid Dental Plan Described

Albertans may now join a prepaid dental plan covering about 70 per cent of dental care costs. The plan, sponsored by the Alberta Dental Service Corporation, will be provided for organized groups of at least 25 persons such as business firms, employee associations, or unions where at

least 75 per cent of eligible staff members must participate.

The plan is an indemnity co-insurance scheme. The union or employer must pay a minimum of 50 per cent of the premium. The plan generally covers a maximum of 70 per cent of dental care costs. Covered services include diagnostic examinations, radiographic examinations, topical applications of anticariogenic agents, fillings, extractions and other surgical care, endodontic and periodontic treatment. Crown and bridge restorations, dentures and other types of elective or cosmetic care will be covered about 50 per cent by the plan. Orthodontic treatment is not included at present.

The plan includes bonuses or incentives if full dental care is received each year. With full care, the bonus during the second year is 10 per cent of the benefits. During the third year, the bonus increases to the maximum level of 20 per cent. Failure to visit a dentist annually and to receive necessary treatment will reduce bonuses by 10 per cent for each year missed until the original benefit level is reached.

Saskatchewan Medicare Introduces Co-Insurance

Saskatchewan residents who seek medical treatment from physicians now have to

pay part of the physician's fee. The new policy, which had been rumoured for several months, was introduced April 1 by the provincial government.

Saskatchewan's medical profession, says the *Canadian Medical Association Journal*, has long held the view that patients should participate in the payment for physicians' services. The Canadian Medical Association also supports this view. The 1967 annual report of the Saskatchewan Medical Care Insurance Plan shows that the volume of claims has increased 6.7 per cent since 1966. The number of physicians in active practice increased 3 per cent.

Manitoba Denture Clinic Reports Increase

More people came to the Manitoba Denture Clinic last year than in any previous year since it began operations in 1960. A spokesman said 8,305 patients attended the clinic in 1967, 33 per cent more than the 6,229 visits recorded in 1966. 4,855 patients received complete upper and lower dentures and 508 received single dentures.

The Manitoba Denture Clinic is a non-profit institution established by the Manitoba Dental Association. The clinic charges \$85 for complete upper and lower dentures.

Research

New Research and Public Health Grants Awarded at Toronto U

Nine National Research Council grants totalling \$65,205 and four public health grants totalling \$40,687 have been awarded to researchers at the Faculty of Dentistry, University of Toronto. The money will aid investigations ranging from "regional and seasonal variation in the concentration of fluorides in rural water supplies" to "evaluation of interceptive orthodontics."

Recipients of the research grants are: R. C. Burgess \$7,335; M. Goldner \$16,660;

M. C. Johnston \$15,290; D. W. Lewis \$8,330; M. A. Listgarten \$3,920; A. T. Storey \$490; C. D. Torneck \$4,900; and D. G. Woodside \$8,280.

Public health grants went to D. W. Lewis \$3,201; C. H. M. Williams and M. Goldner \$2,130; G. A. Zarb \$3,111; and R. G. Ellis and F. Popovich \$32,245.

M. Goldner was awarded a dental research associateship by the National Research Council for the 1968-69 session. NRC graduate dental research fellowships went to P. A. Bell, R. Bozek, S. K. Goldman, E. Luks, M. Paszti, W. J. Sinclair, G. W. Thompson and M. D. Willinsky.

US Dentist to Head Banting and Best Medical Department in Toronto

I. B. Fritz, a dentist and physiologist, has been named director of the Banting and Best Department of Medical Research at the University of Toronto. He succeeds C. H. Best who retired last June. Dr. Fritz is the third director of the department named for the co-discoverers of insulin. The founder and first director was the late Sir Frederick Banting.

Dr. Fritz, whose appointment as chairman of the department and professor of physiology began on July 1, was professor of physiology at the University of Michigan, Ann Arbor.

His research interests are in the effects of hormones on fat metabolism and the interrelation between carbohydrate and fat metabolism.

Dextranase Reduces Caries in Hamsters

Investigators at the US National Institute of Dental Research report that adding dextranase to drinking water reduces dental plaque and caries in hamsters infected with streptococci, in spite of cariogenic diet.

Dextran-secreting streptococci are the principal bacteria positively identified as causing smooth surface caries, and dextran appears to be the principal source of adhesiveness in dental plaque. These

facts prompted efforts to see if an attack on dextran would reduce plaque and caries. To break down dextran, dextranase was extracted from *Penicillium funiculosum*.

Smooth surface decay accounts for more than 50 per cent of caries in children from ages six to 18. This decay develops under plaque as a result of the metabolic activity of the bacteria clustered there. The scientists, therefore, speculate that the destruction of the dextran — which gives the plaque its adherent qualities — might prevent caries of this type. At the same time, since only a metabolic product is attacked, rather than the causative agent itself, this type of therapy would not be expected to alter the ecological balance of the oral microflora.

Nineteen hamsters were employed in the experiments. All were fed a cariogenic diet. All but two were infected with cariogenic dextran-producing streptococci. Plaque formation and decay were arrested or prevented in all seven of the animals given dextranase in food and water, while extensive plaque formation and decay was evident in 10 animals not receiving dextranase. The two hamsters not infected with the streptococci did not develop caries, emphasizing the essential role of bacterial infection in most tooth decay.

The concept of plaque formation is not new in dentistry. However, it has only been recently that scientists have pinpointed specific dextran-producing bacteria as caries-causing agents.

Fluoridation

Fluoridation Gains in Connecticut, Australia

Nearly 75 per cent of the state's urban population is now consuming fluoridated water, reports the Connecticut State Department of Health. In addition, the remaining public utilities lacking fluoridation are installing equipment or, in the case of one, examining the best type of equipment to install.

In Australia, Sydney began to fluoridate its water recently, culminating many years of effort by the local dental society.

Fluoridation Promoted in the Soviet Union

Novosti Press Agency reports that the Soviet Union is endeavouring to supply its citizens with drinking water containing 1.5 ppm (1 mg.—litre) fluoride. New water standards set the minimum fluoride level at 0.5 ppm.

In Norilsk, where the water has been fluoridated for the past eight years, the incidence of caries has declined by almost 50 per cent. Moscow's water, derived from multiple sources with varying fluoride concentrations, is pooled to yield the desired level of fluoride.

Awards and Honours

The Canadian Centennial Medal, conferred in recognition of valuable service to the nation, has been awarded to former CDA president **Gustave Ratté** of Quebec City and to **W. Scott Hamilton** of Edmonton, former dean of the Faculty of Dentistry, University of Alberta.

Toronto dentist **Murray Cornish** is international secretary of the Alpha Omega Fraternity.

Deaths

Brock, Burton William. 89. Montreal. University of Bishops College, 1901. 18-5-68.

Gourlie, Harold Earle. 65. Toronto. Royal College of Dental Surgeons of Ontario, 1924. 21-5-68. Survived by Wilhelmina (wife).

Holden, Gordon Willis. 63. Woodbridge, Ont. University of Toronto, 1931. 15-5-68. Associate member CDA. Survived by Ina (wife); Ross (son); Marion

(daughter); Merrick (brother); and Mrs. Ross Riddell, Mrs. Lloyd Morrow and Mrs. Russell Layzell (sisters).

Thompson, Henry Arthur. 67. Victoria. University of Toronto, 1932. 13-5-68. Survived by Mildred (wife) and Mrs. K. K. McCallum, Mrs. A. Powell and

Mrs. O. H. Webber (daughters).

Winn, Roy Osborne. 73. Kitchener, Ont. Royal College of Dental Surgeons of Ontario, 1916. 27-5-68. Survived by Beatrice (wife); Mrs. R. Strnad (daughter); Edward (brother); and Mrs. J. L. Bowman (sister).

in memoriam

Felix A. French

After a lengthy illness Felix A. French died in Ottawa on May 8. He had been retired from active practice since 1955. Graduating from the Royal College of Dental Surgeons of Ontario in 1906, Dr. French practised in Renfrew, Ontario, until 1910. Partly for health reasons he moved to Edmonton where he conducted a successful practice until 1922 when he returned to the Ottawa Valley. He established an office at 111 Metcalfe Street, Ottawa, where he continued until his retirement. His son, John, joined him in 1940, leaving to serve with the Canadian Dental Corps in 1942, and returning after the war.

Dr. French attained international recognition for his profound knowledge of dentistry and more especially for his original contributions to the field of prosthodontics. Collaborating with other leaders in this special area, notably Tench, Sears, Cummer, Boucher, Applegate and Hanau, Dr. French contributed impor-

tantly to the high standard of denture service which exists today.

Fellowship in the American College of Dentists, honorary membership in the Canadian Dental Association and many other honours were conferred and always received by Dr. French with modesty and humility. As his many friends would testify, he had a great capacity for affection and an unswerving devotion to his God, his family, his country, his profession and his fellow-man.

In his undergraduate days Dr. French was an outstanding athlete and he retained his interest in competitive sports and outdoor recreation. He was a member of two Canadian championship rugby teams: Ottawa College 1901 and Toronto Varsity 1905. He dearly loved his Lake Clear country place where he spent as much time as professional and family responsibilities permitted.

Surviving are his widow, the former Martha Brennan; four sons, John F., Felix, Jr., Rev. Frank I., and Patrick; two daughters, Flora (Mrs. George McNamara) and Anna (Mrs. L. Rohr); and 12 grandchildren.

J. P. Coupland

L'Association

Décès à 86 ans du Dr Felix French

Le Dr Felix A. French d'Ottawa, est décédé le 8 mai, à l'âge de 86 ans. Ses travaux de pionnier dans le domaine de la prosthodontie lui avaient valu une réputation internationale.

Né à Renfrew, Ontario, le 7 avril 1882, le Dr French avait suivi les cours du Royal College of Dental Surgeons of Ontario, qui lui décerna son diplôme DDS en 1906. Le Dr French retourna alors à Renfrew où il pratiqua la dentisterie pendant cinq ans. En 1911, il déménagea à Edmonton et y exerça jusqu'à 1922. Pendant cette période, il devint membre du Conseil d'administration de l'Alberta Dental Association. En 1922, le Dr French retourna dans l'Est du Canada pour ouvrir un cabinet à Ottawa. Il continua à exercer dans la capitale du Canada jusqu'à sa retraite, en 1957.

Le Dr French était l'un des rédacteurs du *Journal of Prosthetic Dentistry*. Il était aussi membre de la National Society of Denture Prosthetics (U.S.), membre à vie de l'Academy of Denture Prosthetics (U.S.), fellow de l'American College of Dentists et membre honoraire à vie du Royal College of Dental Surgeons of Ontario.

Au début de la 2^e guerre mondiale, le Dr French était l'un des trois conseillers de l'Association dentaire canadienne auprès du Ministère de la défense nationale. Le groupe avait la responsabilité

d'organiser le corps dentaire canadien.

En reconnaissance pour les nombreux services qu'il a rendus à la profession, l'ADC lui conféra sa plus haute distinction — celle de membre honoraire, à l'occasion du congrès national de 1960.

Dans un récent message au Dr J. F. French, fils du Dr Felix French, le secrétaire de l'ADC le Dr W. G. McIntosh a déclaré " . . . on se souviendra de lui comme de l'un des dentistes les plus éminents du Canada, comme d'un dentiste qui a beaucoup apporté à la dentisterie organisée et qui a donné libéralement son temps et ses talents, particulièrement dans le domaine de la dentisterie prothétique." La dentisterie canadienne présente l'expression de sa sympathie la plus sincère à la famille du Dr F. A. French.

Nomination de personnel

Le Secrétaire de l'Association le Dr W. G. McIntosh annonce la nomination de M. Alexander G. Zayachkowski au poste de comptable. M. Zayachkowski remplace Mme Isabel (John) Turner qui a déménagé récemment à Kingston (Ontario) où son mari vient d'ouvrir un cabinet dentaire.

Avant d'entrer à l'ADC, M. Zayachkowski était contrôleur-adjoint chez Reeves Hardifoam Ltd. qui fabrique, à Toronto, de la mousse d'urethane souple. Il avait occupé, auparavant, des postes à la Canadian Imperial Bank of Commerce et à la Canada Metal Company.

Canada

Les radiographies dentaires sont sans danger

La radiologie joue un rôle essentiel dans la dentisterie moderne et le patient compte à la fois sur la formation professionnelle du dentiste et sur l'équipement radiologique pour être à l'abri des dangers de la radiation.

C'est ce qu'ont déclaré les experts les plus éminents en radiologie au Canada. Le Dr H. G. Poyton, professeur et chef du département de radiologie de la Faculté dentaire de l'University of Toronto et le Dr D. W. Stoneman, chef de la division de radiologie de l'Université Western Ontario ont traité de ce sujet au congrès de l'Ontario Dental Association à Toronto, le 13 mai.

La profession dentaire, ont-il déclaré, craint que des conceptions erronées concernant la radiation empêchent les parents de faire soigner convenablement les dents de leurs enfants.

"Si les radiographies dentaires sont faites par du personnel qualifié — et le dentiste a appris à se servir correctement des rayons-x, il n'y a aucun danger à redouter" — a déclaré le Dr Poyton. Il a insisté sur le fait que les dentistes se servent des rayons-x pour le diagnostic et non pour le traitement lui-même, que les films rapides réduisent au minimum, le temps de pose et que l'équipement moderne centre le rayon sur une surface de moins de trois pouces de diamètre.

"L'exposition à la radiation pour une étude complète de la bouche — 14 poses — ne dépasse pas la quantité de radiation à laquelle nous sommes tous exposés normalement en trois jours", a fait remarquer le Dr Stoneman.

Coordination des permis d'exercice de la médecine

Les organismes provinciaux qui octroient aux médecins les permis d'exercer ont formé une fédération pour fixer des normes nationales uniformes.

La fédération servira de forum pour les

différentes opinions et attitudes des organismes provinciaux, d'après le docteur J. C. C. Dawson, vice-président de l'organisation. Le docteur Dawson est le secrétaire général du College of Physicians and Surgeons of Ontario.

Les exigences provinciales pour l'obtention de certificats permettant de passer des examens du Conseil médical du Canada varient beaucoup actuellement. Les études commanditées par la fédération aboutiront sans doute à des règlements plus stricts pour les provinces les moins exigeantes. Il est aussi possible que les provinces les plus sévères doivent aussi modifier leurs règlements. Il est possible aussi que l'on admette un plus grand nombre de médecins porteurs de diplômes étrangers. D'après le docteur Dawson, le but est de choisir des candidats intéressants, quelle que soit la faculté dont ils sortent. On se mettra évidemment d'accord sur la formation complémentaire dont ils ont besoin.

Chronique internationale

Air France offre des voyages collectifs pour la réunion de la FDI, à Varna

Air France a établi trois itinéraires pour les dentistes canadiens qui se rendront à la 56e réunion annuelle de la Fédération dentaire internationale à Varna, Bulgarie, du 16 au 22 septembre. Les voyages offerts proposent différentes destinations, avant et après le congrès, y compris Israël, la Tchécoslovaquie, l'Union soviétique, la France et la Grèce. Les prix seront réduits pour les groupes de plus de 15 personnes voyageant ensemble. Pour de plus amples renseignements, veuillez vous adresser aux agents de voyage locaux ou aux représentants d'Air France.

Le gouvernement américain propose des règlements plus stricts pour le matériel de rebasage

Le 4 avril, la "Food and Drug Administration" des Etats-Unis a proposé l'adoption de nouvelles directives en ce qui

concerne l'usage des nécessaires de rebasage. L'ADF a fait remarquer que l'American Dental Association et les dentistes les plus éminents s'étaient inquiétés du danger que pouvaient présenter les matériaux à l'usage du public pour réparer, réadapter ou rembourrer des dentiers mal ajustés, cassés ou irritants. L'ADF a déclaré ces matériaux dangereux et étiquetés d'une façon trompeuse, à moins que les matériaux de rebasage des dentiers, les nécessaires, coussinets et isolants ne soient étiquetés "pour cas d'urgence seulement, l'usage prolongé de dentiers réparés ou ajustés à la maison pouvant endommager rapidement l'os et causer une irritation chronique ainsi que des ulcérations et des tumeurs. Consultez votre dentiste sans tarder".

Le sixième congrès iranien du 11 au 15 septembre

Le sixième congrès annuel de l'Association dentaire iranienne se tiendra à l'Université nationale de l'Iran, à Téhéran, du 11 au 15 septembre. Les personnes qui désirent y participer sont priées de s'adresser au Dr O. Bakhtiari, secrétaire-général de l'Association dentaire iranienne, 82 Hafez Avenue, Téhéran, Iran.

Réunion dentaire à la Jamaïque du 26 janvier au 1er février 1969

Les dentistes canadiens ont été invités à se rendre au cinquième congrès national de l'Association dentaire de la Jamaïque, qui se tiendra du 26 janvier au 1er février 1969. La réunion prendra place à l'hôtel Sheraton Kingston, à Kingston, Jamaïque. Pour de plus amples renseignements, veuillez vous adresser au Dr D. S. Vincent, Chairman of the Convention Committee, Jamaica Dental Association, P.O. Box 19, Kingston 5, W.I.

Congrès dentaire espagnol en avril 1969

Les dentistes canadiens ont été invités à se rendre au 21e congrès dentaire na-

tional et international de l'Association dentaire espagnole qui se tiendra à Madrid, du 7 au 12 avril 1969. L'Association a choisi comme thème du congrès: "le progrès de la dentisterie prothétique". Pour plus de renseignements, veuillez écrire au Dr A. J. Cervera, Colegio de Odontologos, Fernanflor 4, Madrid 14, Espagne.

Facultés dentaires canadiennes

La Faculté dentaire de l'Université Laval ouvrira ses portes en 1971

L'Université Laval acceptera ses premiers étudiants en chirurgie dentaire en 1971. C'est donc en 1975 que l'université de Québec décernera ses premiers diplômes dentaires. C'est ce qu'a révélé le vice-recteur de l'Université Laval, monsieur Louis-Philippe Bonneau, au cours d'une conférence prononcée devant les membres de la Société dentaire de Québec, le 21 mars dernier.

Il a ajouté que l'université devra commencer immédiatement à se préoccuper de recruter son personnel enseignant. Ainsi, les futurs professeurs auront le temps d'aller faire des études de spécialisation avant de se mettre à la tâche.

Il sera très intéressant, a dit monsieur Bonneau, de s'appliquer à concevoir une faculté de chirurgie dentaire qui soit axée non seulement vers la pratique courante dentaire, mais aussi vers la recherche, la dentisterie préventive et la dentisterie sociale.

Soins dentaires gratuits aux enfants à l'U de M

Environ 2,500 enfants des secteurs défavorisés de la région de Montréal ont bénéficié de soins gratuits l'an dernier à la clinique d'été de la Faculté de chirurgie dentaire de l'Université de Montréal.

C'est le Ministère de la Santé du Québec qui absorbe en son entier le coût des activités de cette clinique. Les enfants sont



Au cours de sa visite à Montréal, en avril, l'ancien président de l'ADC, le Dr W. P. Munsie a rencontré les dirigeants des trois sociétés dentaires de la ville et ceux du Collège des chirurgiens-dentistes de la province de Québec. On voit ci-dessus (de g. à dr.) de Dr G. D. Armstrong, président du Montreal Dental Club; le Dr Gérard Lussier, président de la Société dentaire de Montréal; le Dr Munsie et le Dr Benjamin Sedlezky, président de la Mount Royal Dental Society.

traités par des étudiants de 2e et de 3e année qui travaillent sous la surveillance de dentistes diplômés. Cette initiative relève du département de dentisterie préventive qui est sous la direction du doyen de la Faculté de chirurgie dentaire, le docteur Jean-Paul Lussier.

Calgary désire une faculté dentaire

La création d'une faculté dentaire à Calgary formerait des dentistes dont on a grand besoin, mais l'un des éducateurs les plus éminents du Canada croit qu'il est impossible de l'établir du jour au lendemain.

Le docteur H. R. MacLean, doyen de la Faculté de chirurgie dentaire de l'Université de l'Alberta à Edmonton, a déclaré le 6 mars que c'est surtout le nombre insuffisant de personnel enseignant qui retarde la formation d'un plus grand nombre de dentistes.

Le manque de place à Edmonton limite à 50 le nombre des étudiants qui peuvent recevoir les diplômes à la Faculté de chirurgie dentaire de l'Alberta chaque année. Ce nombre est insuffisant, a fait

remarquer le docteur MacLean, car la population de l'Alberta augmente rapidement.

Il a dit qu'il était beaucoup plus facile de fournir des bâtiments pour une nouvelle faculté dentaire, comme celle qu'aimerait avoir Calgary, que de trouver du personnel enseignant hautement qualifié pour les occuper.

De toute façon, un programme d'austérité mis en vigueur par le gouvernement provincial retardera vraisemblablement au moins jusqu'en 1970 le programme d'expansion de la Faculté de chirurgie dentaire d'Edmonton.

Le docteur MacLean a expliqué que sa faculté a l'intention de porter ses classes terminales à 80 étudiants. Cette mesure pourrait être prise sans qu'il soit nécessaire d'augmenter le personnel enseignant dans les mêmes proportions.

Une faculté dentaire à Calgary, même en commençant avec un petit nombre d'étudiants, demanderait de nombreux professeurs. Il est vraiment très difficile de recruter du personnel enseignant, a insisté le docteur MacLean. L'établissement d'une faculté demanderait une planification sur plusieurs années.

Economie

L'Association de l'Ontario rend public son programme pour les enfants

L'Association dentaire de l'Ontario a approuvé un programme de soins dentaires pour tous les enfants de l'Ontario à partir de l'âge de trois ans. Elle a exposé ce programme, qui sera financé par les fonds publics et par des primes basées sur le revenu familial à l'occasion du 101^e congrès annuel de l'ODA à Toronto, du 13 au 15 mai.

D'après le rapport de l'ODA, il est impossible de mettre sur pied immédiatement un programme général pour tous les enfants mais il est possible de commencer avec les enfants de trois ans et de continuer chaque année, jusqu'à ce que les premiers bénéficiaires atteignent l'âge de 18 ans.

Ce programme couvrirait tous les soins dentaires nécessaires pour prévenir la maladie, arrêter la malocclusion et restaurer et entretenir la santé buccale. Il insiste sur les soins d'entretien pour tous les enfants, ce genre de soins ne prenant que la moitié du temps du traitement initial.

Les soins dentaires seraient accompagnés d'un programme de prévention intensive qui comprendrait la fluoruration des eaux publiques.

Dans toute la mesure du possible, ce serait des dentistes privés qui fourniraient ces soins et ils seraient rémunérés en fonction de leurs services. Ce programme couvrirait les services des dentistes de famille et des spécialistes.

Tous les examens dentaires, les procédures de diagnostic et certains traitements, pour les anomalies gênantes, par exemple, seraient entièrement remboursables. Les parents paieraient les dentistes d'après les barèmes existants et seraient remboursés par la suite ou bien le dentiste pourrait facturer directement et demander ensuite au patient le montant qui ne lui est pas remboursé dans le cadre de ce programme.

L'ODA propose également la formation d'un corps de dentistes salariés pour fournir des soins dans les régions de l'Ontario qui manquent de dentistes. Ils utiliseraient

des cliniques mobiles dans les régions les plus éloignées ainsi que des cliniques fixes installées dans les écoles, les hôpitaux et dans les postes de police.

Ces dentistes ne seraient rémunérés que par salaires, les salaires devant être équivalents ou supérieurs à la moyenne provinciale pour les dentistes, d'après le rapport.

"Les étudiants en dentisterie devraient être encouragés à entrer dans ce corps, au cours de leurs premières années d'études", a déclaré le rapport. "Les dentistes diplômés devraient aussi pouvoir faire une demande pour un travail à temps complet".

L'ODA demande aussi que l'on forme plus de dentistes et de personnel auxiliaire. D'après le rapport "il faut encourager l'usage d'auxiliaires pour les services qui ne demandent pas les connaissances spécialisées et la compétence des dentistes".

Le Collège de la Saskatchewan appuie le programme préventif pour les enfants

Le Collège des chirurgiens-dentistes de la Saskatchewan a présenté un programme de santé dentaire pour tous les enfants à partir de l'âge de trois ans. Les gouvernements provincial et fédéral partageront le coût de ce programme, estimé à \$78,459 (\$84 par enfant) pour la première année.

Ce sont des dentistes de Regina, les Drs C. N. Bolen, R. O. Brett et F. T. Wihak, qui ont préparé ce programme. Ils ont été tous les trois membres d'un comité conjoint de la CDSS et du gouvernement de la Saskatchewan, chargé d'étudier les besoins dentaires de la province et le rôle des auxiliaires dentaires.

La caractéristique principale de ce régime est un programme préventif en trois phases qui commencerait avec les enfants de trois à six ans et progresserait chaque année jusqu'à ce qu'il couvre tous les enfants de la province jusqu'à l'âge de 18 ans.

Dans la phase 1, une hygiéniste dentaire ferait une enquête et attribuerait un taux de carie à tous les enfants éligibles dans les cliniques dentaires. Les enfants qui ont besoin de traitement seraient alors

envoyés chez leur dentiste de famille.

Dans la phase 2, les enfants avec des caries latentes seraient rappelés et l'hygiéniste aidée d'un spécialiste en nutrition, étudierait leur cas plus à fond. On ferait aux enfants un test de salive pour vérifier l'activité cariogène, un test d'hémoglobine, une urianalyse et une analyse diététique. Les enfants dont les tests présentent des résultats anormaux seraient envoyés à leurs médecins de famille.

La phase finale consisterait en une application localisée de solutions anticariogènes à tous les enfants éligibles.

Le Collège a demandé instamment que la division dentaire du Ministère de la santé de la province obtienne le statut de section de la santé dentaire. Le directeur dentaire dépendrait directement du sous-ministre de la santé, en ce qui regarde tous les programmes dentaires commandités par le gouvernement, y compris les trois phases préventives du programme pour enfants, qui a été proposé.

Le Collège a réitéré son opposition à l'emploi d'infirmières dentaires comme celles de la Nouvelle-Zélande et aux programmes qui insistent sur le traitement au détriment des mesures préventives. D'après le rapport, le traitement doit être administré par des dentistes autorisés à pratiquer, aidés d'auxiliaires comme celles qui exercent déjà au Canada, et qui sont capables d'aider les dentistes de toutes les manières possibles mais qui ne peuvent ni opérer ni extraire les dents. Le Collège s'engage à prendre des mesures visant à habituer les dentistes à employer plus d'auxiliaires dans leur pratique privée, à promouvoir les mesures préventives dans la pratique dentaire, à recruter et à aider les étudiants en dentisterie à former des hygiénistes et des assistantes dentaires, à desservir les régions isolées et à promouvoir les soins dentaires prépayés.

Recherche

Considérations sur l'immunité à la carie

Lors de la réunion de l'International Association for Dental Research tenue à San

Francisco du 21 au 24 mars dernier, deux membres du personnel dentaire de la marine américaine ont décrit un phénomène d'immunité à la carie dentaire. Les docteurs Gordon Rovelstad et Irving Shklair du Great Lakes Naval Dental Research Institute ont expliqué que les leucocytes d'individus exempts de carie ont la possibilité de détruire les bactéries cariogènes d'un façon plus marquée que ne peuvent le faire les mêmes leucocytes des individus qui sont susceptibles à la carie. On suppose qu'il existe un facteur immunologique chez les individus exempts de carie et l'on croit que ce facteur pourrait aider au contrôle de la carie dentaire.

Dans une autre communication, le docteur Robert Stephan du US National Institute of Dental Research a laissé entendre que les biscuits et les bonbons pourraient un jour devenir des suppléments nutritifs qui pourraient aider à combattre la carie. Il a décrit les travaux qu'il a fait en se servant de protéines de poissons. Si l'on ajoute ces protéines au sucre que consomment des rats de laboratoire, le sucre perd une partie de ses propriétés cariogènes. Si ces protéines agissent de la même façon chez l'être humain, il serait peut-être possible de les ajouter aux friandises qui deviendraient par le fait même, plus nutritives et moins cariogènes.

Le docteur P. N. Baer, lui aussi membre du NIDR, a fait une communication dans laquelle il prétend que la transmissibilité joue un plus grand rôle que les facteurs héréditaires dans la formation du tartre chez les animaux.

Kamal Asgar, de l'Université du Michigan, a parlé d'un nouvel alliage de cobalt qui permettrait de faire des prothèses partielles plus durables. L'alliage contient 50 pour cent de cobalt, 25 pour cent de chrome, 19 pour cent de nickel, et des petites quantités de molybdenum, de fer, de magnésium, de silicone, de carbone et de cuivre.

Monsieur G. M. Brauer, du National Bureau of Standards, a relaté ses travaux avec des ciments dentaires additionnés d'oxyde d'aluminium. Ces ciments prolongent la durée des restaurations dentaires. La force supérieure et la faible solubilité, caractéristiques des ciments à base d'oxyde d'aluminium, de même que la facilité avec laquelle on peut les pré-

parer, permettrait de les employer de façon très efficace pour cimenter de façon permanente des couronnes d'or coulées, ainsi que pour servir d'isolant sous des obturations métalliques.

Le docteur Robert Hertz, de la Faculté de chirurgie dentaire de l'Université de Californie à Los Angeles, propose d'employer des dents extraites irradiées au cobalt pour constituer une banque de dents. En irradiant les dents, comme on le fait déjà avec des os, on pourrait stériliser et conserver les dents de façon à les entreposer de façon prolongée. On pourrait aussi résoudre une partie des problèmes de réjection. Il semble que l'irradiation des dents extraites change la nature des protéines qui sont responsables de la mise en action du mécanisme de rejet. On ne peut cependant pas encore être certain que ces traitements préviendront le rejet de façon permanente.

Fluoration

Des subsides encouragent la fluoration au Québec

Plus d'un demi million de Québécois boivent maintenant de l'eau fluorée, d'après des renseignements récents publiés par le Ministère provincial de la santé. Huit municipalités ont commencé à fluorer leur eau en 1967 et 25 autres, y compris la ville de Québec, commenceront

à fluorer la leur en 1968, à la suite d'une décision de leur conseil municipal.

Ce regain d'intérêt est la conséquence d'un système de subsides qui a été inauguré l'année dernière pour aider les municipalités à installer l'équipement nécessaire à la fluoration. Dix municipalités ont reçu un total de \$50,000 depuis le début du programme et 20 autres ont demandé de l'aide.

Fluoration à Toronto: "Evidence irréfutable d'avantages substantiels"

La fluoration de l'eau potable à Toronto, qui a commencé en septembre 1963, a apporté une amélioration marquée à la santé dentaire des enfants de cinq ans, qui ont eu de l'eau fluorée depuis leur naissance. C'est le directeur du service de santé dentaire de Toronto, le Dr H. S. Grey, qui a révélé ce fait, le 15 mai. "Nous avons la preuve irréfutable des avantages substantiels de la fluoration, particulièrement chez les enfants de cinq ans", a déclaré le Dr Grey.

Distinction honorifique

le docteur **Guy Poirier**, dentiste traitant, occupe actuellement le poste de Maire à Waterloo, Qué.

Reliure pour le Journal • L'Association dentaire canadienne a fait les ententes nécessaires pour permettre aux lecteurs de son Journal de faire relier les numéros de 1967, s'ils n'en ont pas eux-mêmes la possibilité. Les abonnés qui le désirent, peuvent envoyer leur commande accompagnée des 12 numéros du Journal, à la Carswell Printing Co., Bindery Division, 245 Bartley Drive, Toronto 16, Ont. Les 12 fascicules seront reliés en beau bougran bleu avec le titre, l'année et le numéro du volume repoussés or. Le prix est de \$5 plus l'affranchissement pour la réexpédition.

The 1969 budget

There are many ways of handling an economic crisis. The French, who are rather flamboyant about these things, tried it with a bang during this spring's riots and general strike. The British, in more phlegmatic fashion, have done their best by refusing to admit that the only way their country can produce more is for its people to work harder. The Canadian Dental Association's Board of Governors has chosen the middle ground by sanctioning a \$25 per capita increase in corporate member grants "in the near future."

The Board's action is welcome and timely; just how timely is shown by the \$33,800 deficit budget which the Board approved for 1969 and to which it tacked three additional measures which may push this figure beyond the \$40,000 mark.

The CDA has already absorbed the effects of four years of deficit financing. It absorbed it at a heavy cost — paring expenditures to a bare minimum, curtailing important services, dipping into the reserve fund — mercifully without any major calamity so far. One might have anticipated that this experience would have a salutary effect. But in Vancouver the treasurer again had to trim council, committee and bureau askings in order to arrive at the figures which the Board subsequently approved. We cannot indulge in such practices year after year without impairing the national association.

This year's directives from the Board of Governors demonstrate very clearly that those who guide the affairs of our profession want the CDA to continue its work and growth. All corporate members are now fully aware of what is required to sustain vigorous growth. Several have offered to raise their contributions next year and their gesture is warmly appreciated. If these corporate members were to grant the full \$25 increment, however, the amount so realized would be largely absorbed by the deficit projected for 1969; little would remain for the expanded services envisaged in the Executive Council's 'Five Year Projection.'

Fortunately, the other corporate members have also indicated a willingness to adjust their contributions as soon as possible. Their sympathetic response is likewise acknowledged. For the good of Canadian dentistry, it is to be hoped that the interval between intent and concrete action will be brief.

Le budget 1969

On peut traiter une crise économique de bien des façons. Les Français, qui aiment faire les choses avec éclat, s'y sont employés, ce printemps, à coups d'émeutes et de grève générale. Les Anglais, plus flegmatiques, ont fait de leur mieux en refusant d'admettre que la seule façon d'augmenter leur production était de travailler plus dur. Le Conseil des Gouverneurs de l'Associa-

tion dentaire canadienne a choisi un moyen terme, en approuvant une prochaine augmentation de \$25 par personne des subventions payées par les organisations membres.

Cette décision du Conseil est sage et elle a été prise à temps, comme l'indique le déficit budgétaire de \$33,000 que le Conseil a approuvé pour 1969. Il se peut même que, grevé par trois autres mesures, ce déficit dépasse \$40,000.

L'ADC a déjà absorbé les effets de quatre années de financement déficitaire et le prix qu'elle a dû payer a été élevé: réduction des dépenses au strict minimum, limitation de certains services importants, recours au fonds de réserve, heureusement sans conséquences catastrophiques jusqu'à présent. On aurait pu croire que cette expérience aurait un effet salutaire, mais à Vancouver, le trésorier a dû, à nouveau, réduire les demandes du Conseil, des comités et des bureaux pour arriver aux chiffres qu'a approuvés subsequmment le Conseil. Notre association nationale ne peut que souffrir de ce genre de mesures, année après année.

Les intentions de ceux qui dirigent les affaires de notre profession se dégagent clairement des directives du Conseil des Gouverneurs: ils veulent que l'ADC persévère dans sa tâche et continue à se développer.

Toutes les organisations membres savent parfaitement maintenant ce qu'exige un essor soutenu. Plusieurs d'entre elles ont offert d'augmenter leurs contributions l'année prochaine et leur geste a été très apprécié. Toutefois, même si ces organisations nous donnaient intégralement les \$25 d'augmentation, le déficit prévu pour 1969 absorberait la presque totalité de la somme. Il ne resterait que très peu de chose pour l'expansion des services envisagés dans "l'estimation pour les cinq prochaines années" qu'a préparée le Conseil exécutif.

Il est donc heureux que les autres organisations membres se soient déclarées prêtes à ajuster leurs contributions dès que possible. Leur réaction favorable a été dûment appréciée. Pour le bien de la dentisterie canadienne, nous espérons qu'il ne s'écoulera que peu de temps entre ces bonnes intentions et leur réalisation.

letters • courrier

Guy's Hospital Directory

To the Editor:

I am in the process of revising the Directory which contains particulars of all physicians and dentists who trained at Guy's Hospital, London. A letter requesting current information has been sent to the last known address of every dentist in Canada who trained at Guy's. If there are any who have

not so far received this letter, I shall be most grateful if they will let me know at once so that a further copy can be sent without delay. I would be glad if you would publish this letter or draw attention to its contents in some other way.

F. S. Warner, FDS, MRCS,
Medical and Dental Schools,
Guy's Hospital,
London Bridge, SE 1, England.



La dentisterie légale

Forensic dentistry

and the FDI

Forensic dentistry concerns the handling and examination of dental evidence and the interpretation and presentation of dental findings in the interests of justice. Obviously, dental evidence can only be handled and examined adequately by a qualified dentist. Forensic dentistry is therefore a *dental* subject.

Dental evidence may ensue from injuries to the teeth and jaws, bite marks or the identification of human remains by dental means. Dental identification is by far the most important domain because such cases occur fairly often and because identification is a matter of far reaching importance — legally, financially, and emotionally — to the individual citizen and to society. Dental records and history charts played a vital role in the identification of the 118 passengers who perished aboard the steamship *Noronic* when that vessel was swept by a disastrous fire while tied up overnight at the Toronto waterfront on September 17, 1949 (*J. Canad. Dent. Ass.* 18:3, 1952). Other isolated cases are also encountered.

A general knowledge of dentistry may often suffice to solve a problem of dental jurisprudence. Any dentist may render useful service if called upon to assist in a straight-forward case. He is fully entitled to accept status as a professional expert.

La dentisterie légale concerne l'examen de l'évidence dentaire ainsi que l'interprétation et la présentation de cette évidence dans les intérêts de la justice. Il est certain que seul un dentiste qualifié peut examiner l'évidence dentaire. La dentisterie légale est donc un sujet *dentaire*.

L'évidence dentaire peut être le dommage fait aux dents et aux mâchoires, des traces de morsure ou l'identification des cadavres humains, par des moyens dentaires. L'identification dentaire est de loin le domaine le plus important parce que ce genre de cas se présente assez fréquemment et que l'identification a des conséquences de la plus haute importance, légale, financière et émotive, pour les particuliers et pour la société. Les dossiers et chartés dentaires ont joué un rôle de premier plan pour identifier les 118 passagers qui périrent à bord du bateau *Noronic*, après l'incendie désastreux qui ravagea ce navire dans le port de Toronto, le 17 septembre 1949 (*J. Ass. Dent. Canad.* 18:3, 1952). Des cas de ce genre se présentent de plus en plus fréquemment.

Une connaissance générale de la dentisterie peut souvent suffire à résoudre un problème de jurisprudence dentaire. Tout dentiste peut contribuer utilement à la solution de n'importe quel cas simple. Il a pleinement le droit d'accepter le statut d'expert professionnel. Mais tous les cas ne sont pas simples. Il faut aussi des experts dentaires avec une formation et une compétence spéciales. La Fédération propose donc des cours de formation sous-gradués et post-gradués en dentisterie légale.

Not all cases are simple, however. Dental experts of more advanced training and skill are also needed. The Federation therefore advocates the conduct of undergraduate courses and postgraduate training in forensic dentistry.

The FDI has a Subcommittee on Forensic Odontology composed of six members from Denmark, Germany, Japan, Sweden, Britain and the United States. Each member is an expert who has acquired practical experience in the field. The subcommittee is preparing a *Handbook on Dental Identification*. Several chapters are ready for printing; the remainder are expected to follow within the next two years. The subcommittee secretariat has also become an acknowledged international reference and service centre. The subcommittee's secretary attends various international dental and medical forensic meetings. These offer an opportunity for organizing separate sections on the topic, establishing world-wide contacts, and disseminating knowledge about forensic dentistry. Contacts have also been established with many national police forces and with the International Criminal Police Organization (Interpol) in Paris. The latter recently asked the subcommittee's advice on an internationally acceptable 'odontogram' for inclusion in a new international standard police form for the description of missing persons and unidentified bodies. As a direct consequence, the subcommittee will urge that the FDI General Assembly authorize the development of a uniform system of dental recording. A widely accepted uniform recording system would benefit the collection and processing of many types of future dental data.

The subcommittee holds open business meetings at all FDI annual sessions and cooperates in joint commission programs. It enjoys close links with all FDI standing commissions, particularly the Commission on Dental Research. This relationship permits the subcommittee to seek the advice and aid of many renowned specialists from all over the world in the pursuit of its particular aims.

La FDI a établi un sous-comité chargé d'étudier l'odontologie légale. Il se compose de six membres qui viennent du Danemark, d'Allemagne, du Japon, de Suède, de Grande-Bretagne et des États-Unis. Chacun de ces membres est un expert qui a acquis une expérience pratique dans ce domaine. Ce sous-comité prépare actuellement un *Manuel sur l'identification dentaire*. Plusieurs chapitres sont prêts pour l'impression. Le reste devrait suivre dans les deux prochaines années. Le secrétariat du sous-comité est devenu aussi une autorité internationale et un centre de renseignements. Le secrétaire du sous-comité se rend à différentes réunions dentaires internationales ainsi qu'à des réunions sur la médecine légale. Ceci permet d'organiser des discussions séparées sur ce sujet, d'établir des contacts mondiaux et de disséminer des connaissances sur la dentisterie légale. Des contacts ont été établis avec différents services de police nationaux et avec l'Organisation internationale de la police criminelle (Interpol) à Paris. Ce dernier organisme a demandé récemment l'opinion du sous-comité sur un "odontogramme" acceptable internationalement, afin de l'inclure dans une nouvelle formule policière standard pour la description des personnes portées disparues et des corps non identifiés. Comme conséquence directe, le sous-comité demandera instamment à l'assemblée générale de la FDI d'autoriser la mise au point d'un système uniforme pour l'établissement des dossiers dentaires. Un système uniforme généralement accepté faciliterait la centralisation et le traitement de toutes sortes de renseignements dentaires, à l'avenir.

Le sous-comité tient des réunions ouvertes à toutes les sessions annuelles de la FDI et participe aux programmes de la commission conjointe. Il maintient des relations étroites avec tous les comités permanents de la FDI et, en particulier, avec la commission chargée des recherches dentaires. Ces relations permettent au sous-comité de demander l'avis et l'aide de nombreux spécialistes de renom du monde entier à ses fins particulières.

S. Keiser-Nielsen

Accuracy of recall of dental care received during the preceding year

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A pilot study in 558 Canadian servicemen showed considerable inaccuracy in the memory-reporting of dental visits made during the previous year. There was a general tendency to report more visits than had actually occurred. The error attached to the reporting of such simple data may jeopardize the validity of dental information being solicited in a questionnaire distributed to 35,000 Canadian households this year.

Un sondage pilote parmi 558 soldats canadiens a révélé qu'ils se souvenaient très mal du nombre de visites qu'ils avaient faites chez le dentiste, l'année précédente. La tendance générale était d'indiquer plus de visites qu'ils n'en avaient faites. Cette erreur sur une question aussi simple, pourrait enlever toute validité aux renseignements dentaires sollicités par un questionnaire distribué, cette année, à 35,000 foyers canadiens.

Surveys that seek memory-based information from the public depend on two factors: (a) the wording of questions which can be clearly understood by the respondents, and (b) the respondents' ability to reply meaningfully to the questions asked. Since personal recall of dental care experience will be included in a forthcoming survey of the Canadian population, we decided to pre-test the accuracy of such recall experience in a group

of adults. We first reviewed similar studies carried out in the United States.

In 1956 the US Public Health Service compared 5,988 patients' reporting of chronic illnesses treated under the Kaiser Foundation Health Plan with medical care previously advocated by a physician. Patients accurately recalled 45.3 per cent of the 6,140 illnesses detected by the physician during a 12 month period.¹

Three hundred and fifty beneficiaries

of the Health Insurance Plan of New York who stayed in a hospital during the preceding year were asked to recall their experience. Eighty-seven per cent correctly remembered they had spent one or more nights in hospital during this period. Only half of the hospitalization episodes that had occurred nine months or earlier were recalled, whereas 97 per cent of episodes occurring within the previous six months were reported. Sixty-four per cent of 840 beneficiaries accurately recalled that they had seen a physician during the preceding two weeks. Only 34 per cent of those who had seen a physician 4-12 months earlier reported this correctly. The accuracy of recall decreased rapidly with time.²

In a study by the Survey Research Centre of the University of Michigan, persons served by 18 hospitals in Detroit were asked to report if they had been in hospital during the previous year. The result was that 17.3 per cent of respondents failed to report an actual episode of hospitalization, while 3.3 per cent of respondents reported a stay which did not occur during the period.³

Evidently, there was considerable inaccuracy in the recall of health care experience. The precision of recall deteriorated with time, but even short-term recall of medical care services was very inaccurate. The accurate reporting of illnesses was subject to a much larger range of error; only one-third of medical diagnoses were correctly remembered in the Health Plan Study.

Draker⁴ found that recall of the date of dental care was likewise unreliable. His survey was based on a sample from the community at large. Only 26 per cent of 622 patients were accurate in recalling the correct year of their dental care. With a time differential of plus or minus three years the figure rose to 60 per cent.

DESIGN OF STUDY

The Dental Health Division of the Department of National Health and Welfare and the Dominion Bureau of Statistics inserted the following three pertinent questions in the February 1968 issue of a

monthly questionnaire distributed to 35,000 Canadian households:

33. How many times did this person (head of household) visit a dentist last year?

34. Number of children under 14 years of age?

35. Number who visited a private dentist last year?

The value of the replies depends in part upon how well the respondents recall visits to the dentist. To answer this question the Royal Canadian Dental Corps conducted a memory survey in February 1967. We wanted to determine whether servicemen over- or underestimated the number of visits they made to a Service dentist during the preceding year.

METHOD

The Canadian Forces Base Petawawa, Ont., with a military force of 3,100 and a townsite of 1,713 households was selected for this survey. The base dental officer, acting as the study co-ordinator, selected six homogeneous units as the study population (total 558). Unit commanders were briefed on the aim of the survey. They were then asked to distribute the following question to be answered by all members of their units according to the best of their knowledge and memory: "How many times did you visit the Service dentist last year (1966) [Circle: 0 1 2 3 4 5 6 7 8 9]?" The replies were subsequently compared to the matching dental records.

FINDINGS

The average number of visits to the dentist were calculated from dental records and from the questionnaires. The records gave an average of 1.52 visits whereas the servicemen recalled on the average 1.69 visits or about 11 per cent in excess of actual visits. These results accord with the previously noted tendency to over-report health care. A chi-square analysis was made of the distribution of the number of visits recorded on clinical

TABLE 1 Servicemen classified by the actual number of dental visits and the number of visits remembered.

Number of visits	Servicemen					
	Who remembered visits		Who did not remember visits		Total servicemen	
	N	%	N	%	N	%
0	164	29.4	116	20.8	280	50.2
1	41	7.3	48	8.6	89	15.9
2	16	2.9	38	6.8	54	9.7
3	13	2.3	37	6.6	50	8.9
4	6	1.1	21	3.8	27	4.9
5	5	0.9	9	1.6	14	2.5
6	1	0.2	15	2.7	16	2.9
7	0	0	7	1.3	7	1.3
8	0	0	7	1.3	7	1.3
9	4	0.7	10	1.7	14	2.4
Total	250	44.8	308	55.2	558	100.0

records and the distribution of visits recalled. The result (142.6) clearly indicated that the differences in distribution were not attributable to chance and that there was a significant bias in the recall of visits, significant at the .001 level. Table 1 compares the correct and incorrect recall of visits by actual number of visits made.

Table 2 shows over- and under-reporting of dental visits in terms of the magnitude of this error. Persons with a discrepancy of 1-3 visits tended to over-report their visits (175 over-reported; 108 un-

der-reported). Beyond this level of discrepancy, over- and under-reporting was almost evenly divided (12 over-reported; 13 under-reported).

DISCUSSION

It is evident that servicemen cannot accurately recall the dental care which they received during the previous year. Less than half reported this information without error. It is also evident that the statistical errors did not cancel each other

TABLE 2 Magnitude of errors in reporting dental visits.

Difference between actual and remembered visits	Servicemen					
	Who over-stated visits		Who under-stated visits		Total Servicemen	
	N	%	N	%	N	%
1	108	35.1	64	20.8	172	55.8
2	40	13.0	25	8.1	65	21.1
3	27	8.8	19	6.2	46	14.9
4	4	1.3	5	1.6	9	2.9
5	4	1.3	3	1.0	7	2.3
6	1	0.3	1	0.3	2	0.6
7	3	1.0	4	1.3	7	2.3
Total	187	60.7	121	39.3	308	100.0

$\chi^2 = 142.6; P < 0.001$

out. Equally apparent is the tendency to over-report dental care in the group as a whole.

These findings conform with the results of similar studies concerning the ability to recall medical, dental and hospital care. There is a greater tendency to report fictitious dental visits, within the time period under review, than hospital or medical care. Whether this is because the respondents are routinely eligible to receive dental care is difficult to assess. In civilian life they would probably have to expend more effort to obtain dental appointments. This could influence their ability to recall this information.

CONCLUSION

This study shows that considerable error accompanies the memory-reporting of

very simple information about health services received during the previous year. Information from other studies suggests that when questions about the care received become more sophisticated, recall becomes less precise, thereby raising the level of reporting error.

*Major Chatwin is the preventive dentistry officer at Canadian Forces Headquarters, Ottawa.

†Miss Delaquis is a statistician and Mr. Walker is the principal research officer at the Department of National Health and Welfare, Ottawa.

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2. US National Health Survey. Health Statistics. Series D, No. 5. Health interview responses compared with medical records. June 1961. 74 p. PHS Publication No. 584-D5.
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Canadian Forces Headquarters

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Bacteriological examination of swab test cultures for caries activity

The swab test for caries activity is based on interpretation of colorimetric pH changes resulting from the growth of the micro-organisms present in the swab test sample. Although the test conditions favour lactobacilli, growth is not restricted to these bacteria alone. Low pH cultures have a heavy and almost exclusive lactobacillus growth, whereas a mixed microbial population characterizes most middle and high pH cultures. Cultures with little or no decrease in the initial pH of 5 usually result from lack of growth, while reversed pH readings result from heavy growth of acetoin-producing gram negative rods. In experimental cultures of a smooth form of lactobacillus isolate, the acidity produced in swab test medium is seen to be linearly related to the inoculum size. This relationship is disrupted when oxidative organisms are also present, especially if the lactobacillus inoculum is reduced beyond a certain threshold level. From this work, the authors conclude that inadequate swab samples and simultaneous fermentative and oxidative bacterial metabolism may account for inconsistent results that limit the clinical value of the swab test.

■

Le test par frotti pour juger de l'activité cariogène est basé sur l'interprétation des changements du pH résultant de la croissance des micro-organismes présents dans l'échantillon prélevé. Bien que les conditions du test favorisent les lactobacilles, ils ne sont pas les seuls à se développer. Des cultures à pH faible montrent une croissance importante et presque exclusive des lactobacilles alors que celles d'un pH moyen ou élevé sont caractérisées par

la présence d'une population microbienne mixte. Les cultures dont le pH initial de 5 n'a été que peu ou pas augmenté montrent un manque de croissance alors qu'un pH inversé produit une croissance importante de bâtonnets gram-négatifs, producteurs d'acétoïne. Dans les cultures expérimentales d'une forme lisse de lactobacille, l'acidité produite lors du test par frottis apparaît comme linéaire par rapport à la quantité de liquide de culture. Cette relation est dérangée lorsque des organismes oxydants sont présents également, particulièrement si l'on réduit l'inoculation du lactobacille au-delà d'un certain palier. A la suite de ces expériences, les auteurs concluent que des prélèvements échantillons inadéquats et un métabolisme bactérien simultanément fermentatif et oxydant peuvent expliquer les résultats contradictoires qui limitent la valeur clinique du test par frottis.

An accurate laboratory test for caries activity would be valuable for clinical use and epidemiological studies. Caries activity is difficult to measure because of the many variable factors involved, such as the nature of the tooth, saliva, diet and personal habits, all of which influence the activities of the bacteria in the caries process.¹ No known single factor correlates accurately with caries activity. Moreover, there is no way of obtaining a representative sample from the mouth for test purposes. Though many have tried to develop an accurate test,²⁻⁷ only the lac-

tobacillus count of saliva²⁻⁴ and Snyder's colorimetric test⁷ have gained any acceptance.

In the Snyder test, paraffin-stimulated saliva is inoculated into a semi-solid acidic medium containing glucose and a pH indicator. The colour change of the culture at 24, 48 and 72 hours reflects degrees of acid production which are interpreted in terms of caries activity. The swab test, a simplified version of the Snyder test, was recently described by Grainger et al.⁸ This test seemed well adapted for public health surveys and educational purposes. A swab specimen is taken from the buccal surface of the teeth, inoculated into a small vial containing low pH semi-liquid medium with a pH indicator, and incubated for 48 hours. The Snyder and swab tests depend on pH changes induced by the growth of the micro-organisms present in the test sample. Low pH readings tend to be associated with high caries activity, while high pH readings reflect relative freedom from this disease. The microbial growth in swab test cultures was therefore investigated in order to examine the pH changes in terms of microbial metabolism and to ascertain the conditions that influence these pH changes.

MATERIAL AND METHODS

The swab test medium contains Difco tryptone, dextrose and bromo-cresol green as the pH indicator.⁸ Agar (0.25 per cent) renders the medium semi-liquid. The initial pH is adjusted to 5.0 with lactic acid. Aliquots of 2.5 ml. of medium are dispensed into 5 ml. screw cap vials and autoclaved for use in the test.

Inocula were obtained by stroking the buccal surface of the teeth and gingiva from back to front in all four quadrants with a cotton-tipped applicator. The applicator was inserted into the medium, rotated five times and broken off against the lip of the vial, leaving the swab immersed. The vial was then closed and incubated at 37°C. The pH of the culture was recorded 48 hours later.

About 150 cultures from elementary school children were obtained through

the Wellington-Dufferin Health Unit, Fergus, Ontario. Another 60 cultures were secured from paedodontic patients in the Department of Preventive Dentistry, Faculty of Dentistry, University of Toronto. One hundred and twenty samples were collected at random from Toronto school children (ages 5-7). Another 30 samples were obtained from caries-resistant patients and dental students (ages 8-40) at the Faculty of Dentistry.

About 20 cultures from the low pH range and 15 cultures from the middle pH range, selected at random, and all 50 cultures from the high pH range swab tests were plated for isolation purposes. Grainger et al.⁸ defined these ranges as follows: low range pH readings < 4.18; middle range pH readings 4.18-4.68; high range pH readings > 4.68.

Each vial was inverted five times after incubation in order to mix the growth. A standard loopful (0.02 ml.) from each vial was plated on blood agar and mitis salivarius agar, and two loopfuls were plated on Rogosa SL agar. The plates were incubated aerobically for 24 to 48 hours. Subsequent isolates were assigned to one of five definite groups according to growth characteristics on the three media, gram staining, cell morphology and catalase tests. The individual members of each group were then tested for acid production in the swab test medium by using a whole colony of a 48 hour growth on trypticase-soy (TS) agar as inoculum. One or two isolates were chosen from each group and considered as representative of their group for the purpose of the study. We tried to identify these isolates as to species. We also investigated their acid production in the swab test medium.

Log dilutions of 24 hours TS broth cultures of the representative organisms were made and 0.2 ml. of each dilution was inoculated into swab test medium. The resultant pH reading for each dilution following 24, 48 and 72 hour aerobic and anaerobic incubations was then recorded. The number of organisms in each test was determined by viable count using the pour plate method.

Log dilutions of 24 hour TS broth cultures of the representative organisms were also prepared for combination experiments in order to observe the bacte-

Occurrence of Organisms at Various pH Ranges.—Examination of swab test cultures revealed that certain pH ranges were associated with particular groups of organisms (Figure 1). Thus, lactobacilli were frequently the sole organisms isolated at the low pH range while streptococci and staphylococci-micrococci were isolated at middle and high pH ranges. Oral yeasts occurred with uniform frequency at all pH ranges. Gram negative rods were seldom isolated. Cultures above pH 4.7 were mainly, though not exclusively, characterized by limited or no growth. Storage of swab test cultures at refrigeration temperatures resulted in changes of pH and flora; the oral yeasts tended to persist, while the other organisms lost their viability as determined by subculture.

Upon microscopic examination of swab test cultures, streptococci and other cocci were seen more commonly and at lower pH ranges than appeared from the plat-

ing of these cultures. This fact, and the tendency of these organisms to stain gram negative in direct smears, indicate a high death rate concomitant with the increasing acidity.

Examination of Representative Organisms for Acid Production in Swab Test Medium.—Log dilutions of 24 hour TS broth cultures of the representative organisms were made in saline for inoculation of swab test medium and for plate counts.

1. Acid Production of Lactobacilli.

The lactobacillus isolates tested in the following experiments were tentatively identified as *Lactobacillus casei* (JN₁) and *Lactobacillus acidophilus* (JN₂) which formed rough colonies. Their pH readings in relation to inoculum size following 24, 48 and 72 hour incubation periods under aerobic and anaerobic conditions are shown in Figures 2 and 3. JN₁ reduced the pH while JN₂ tended to raise

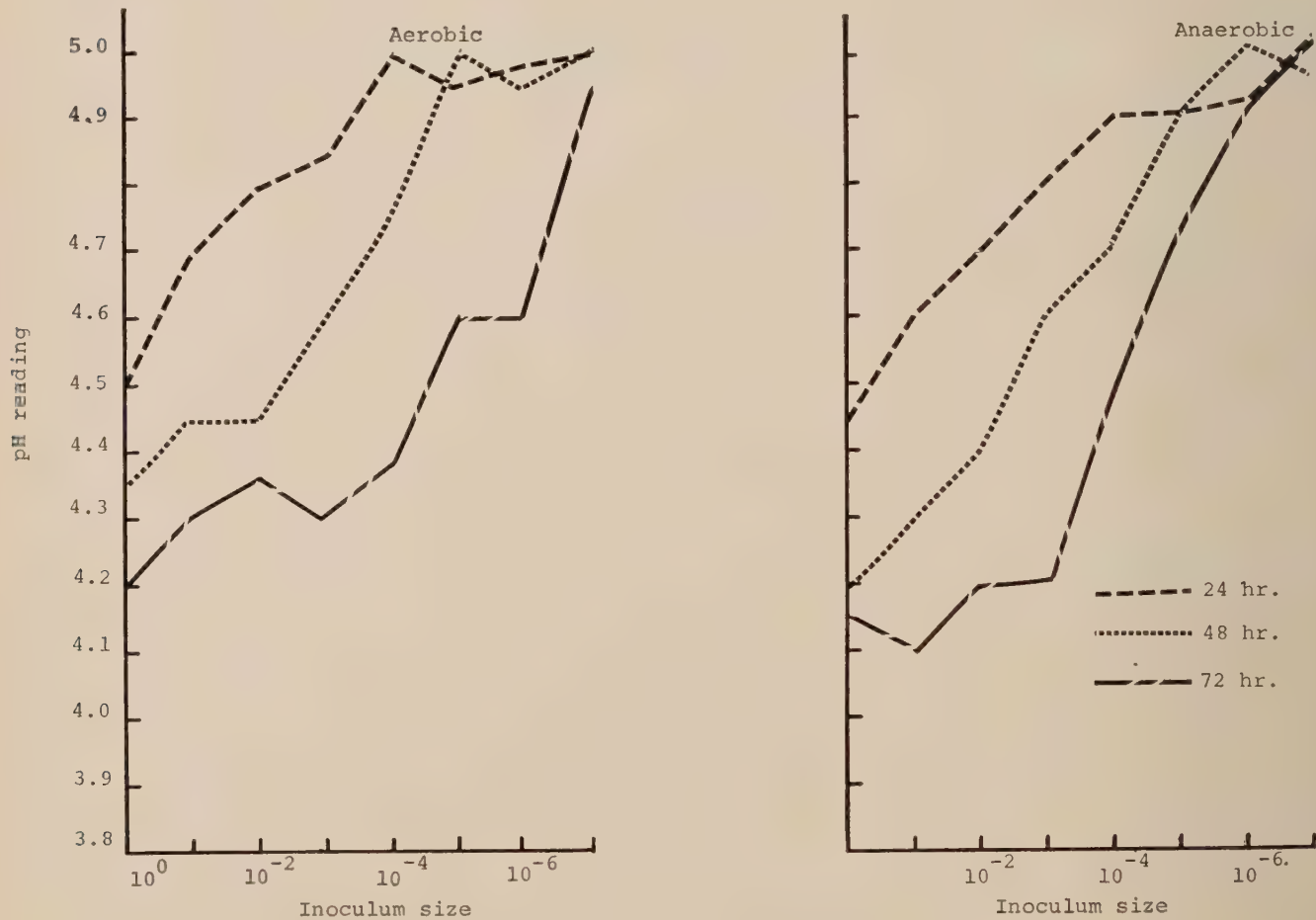


FIGURE 2 Effect of decreasing inoculum size on pH readings in swab test cultures of *Lactobacillus* JN₁ following incubation for 24, 48 and 72 hours under aerobic and anaerobic conditions. The inocula were log dilutions of a 24 hour TS broth culture at an original concentration of 6×10^7 cells/ml. as determined by plate count.

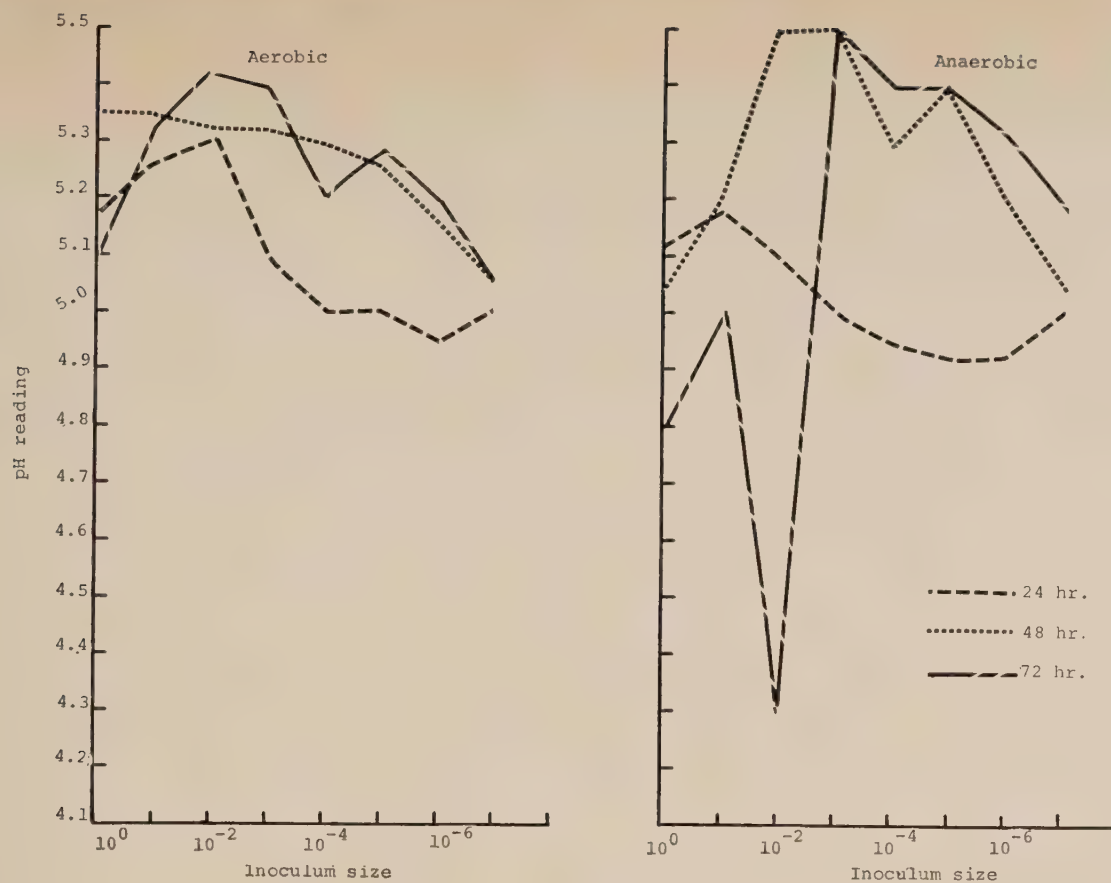


FIGURE 3 Effect of decreasing inoculum size on pH readings in swab test cultures of *Lactobacillus JN₂* following incubation for 24, 48 and 72 hours under aerobic and anaerobic conditions. The inocula were log dilutions of a 24 hour TS broth culture at an original concentration of 8.1×10^7 cells/ml. as determined by plate count.

the pH in the swab test medium in direct relation to inoculum size and time.

The pH readings for aerobic and anaerobic cultures were similar for *JN₁*, the lowest pH being 4.1. For *JN₂* under aerobic conditions the highest pH reading was 5.4, while under anaerobic conditions the pH readings became irregular, varying between 4.3 and 5.5.

2. Acid Production of a Yeast.

The acid production of an oral yeast isolate (1-4) in the swab test medium is illustrated in Figure 4. The pH declined at first to 4.25 (48 hours), then rose on subsequent incubation (72 hours). Growth of this organism was poor under anaerobic conditions (Figure 4), the lowest pH being only 4.75. The addition of a very heavy inoculum to the swab test medium resulted in a high pH (4.9) after 48 hours.

3. Acid Production of Streptococci.

The acid production after 48 hours of a streptococcus isolate (7-1) resembling *Str. bovis* is illustrated in Figure 5. The

pH declined in this test to 4.15. Aerobic and anaerobic cultures of this organism produced similar pH readings. These readings were directly related to inoculum size (Figure 6) and to length of incubation time. Certain streptococcal isolates lowered the pH of the swab test medium to 4, some reduced it to 4.6, while others did not produce any pH changes.

4. Acid Production of Staphylococci-Micrococci.

Figure 7 shows pH readings at 24, 48 and 72 hour incubation periods for various dilutions of *Staph. epidermidis* (2-7). This organism was chosen to represent the staphylococci-micrococci group. The lowest pH (4.6) occurred at 48 hours; further incubation raised the pH slightly. Anaerobic incubation greatly decreased the activity of this organism.

5. Behaviour of a Gram Negative Rod in Swab Test Medium.

A gram negative motile rod which tended to reverse the pH in swab test medium

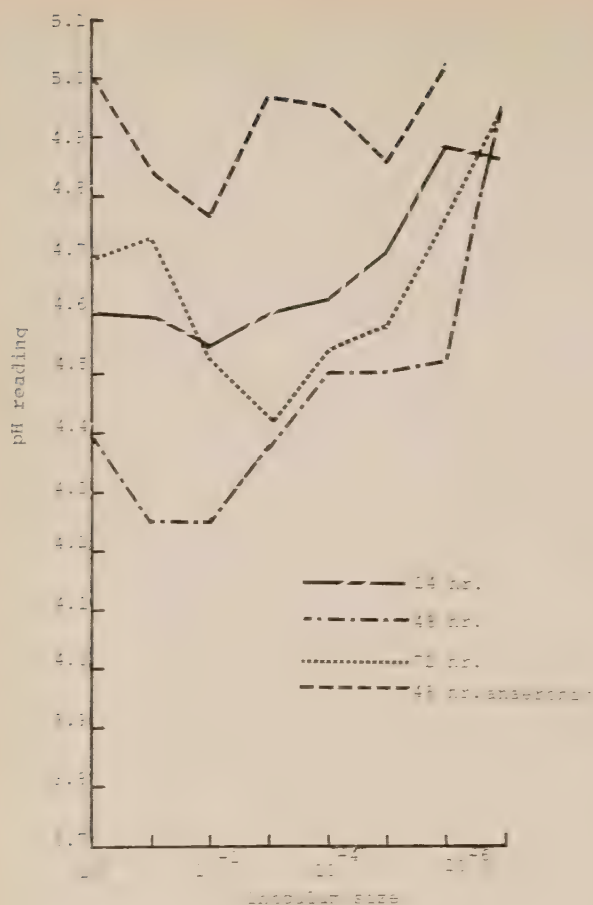


FIGURE 4 Effect of decreasing inoculum size on pH readings in swab test cultures of oral yeast (1-4) following incubation for 24, 48 and 72 hours under aerobic and for 48 hours under anaerobic conditions. The inocula were log dilutions of a 24 hour TS broth culture at an original concentration of 1×10^8 cells/ml. as determined by plate count.

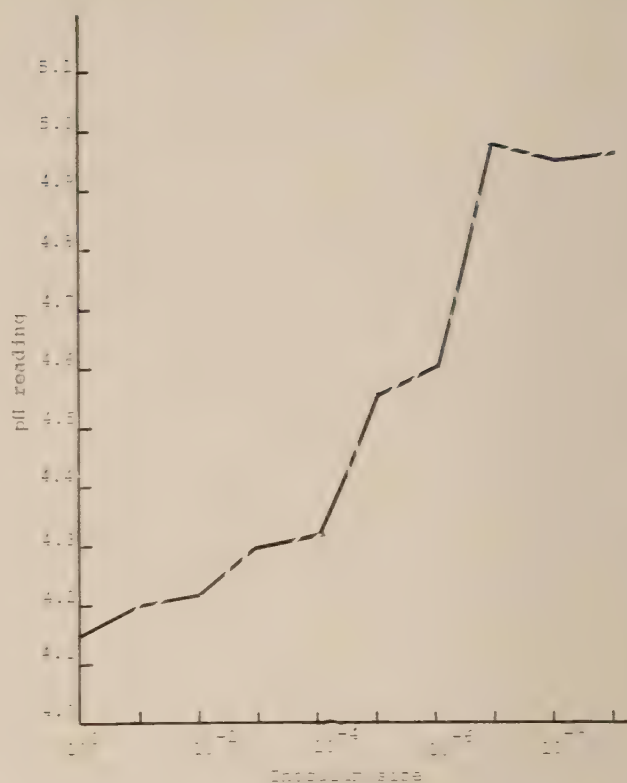


FIGURE 5 Effect of decreasing inoculum size on pH readings in swab test cultures of *Streptococcus* (7-1) following 48 hour incubation. The inocula were log dilutions of a 24 hour TS broth culture at an original concentration of 6.5×10^8 cells/ml. as determined by plate count.

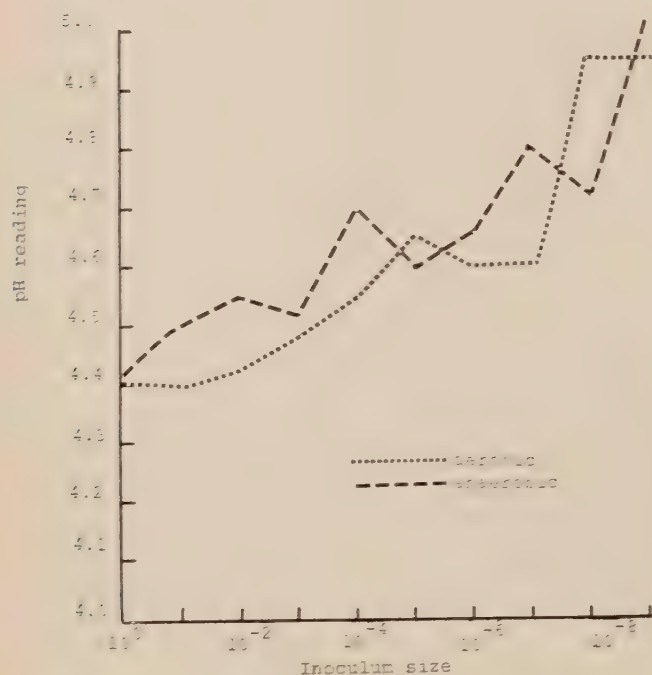


FIGURE 6 Effect of decreasing inoculum size on pH readings in swab test cultures of *Streptococcus* (7-1) following incubation for 48 hours under aerobic and anaerobic conditions. The inocula were log dilutions of a 24 hour TS broth culture. (No bacterial count was available for this experiment.)

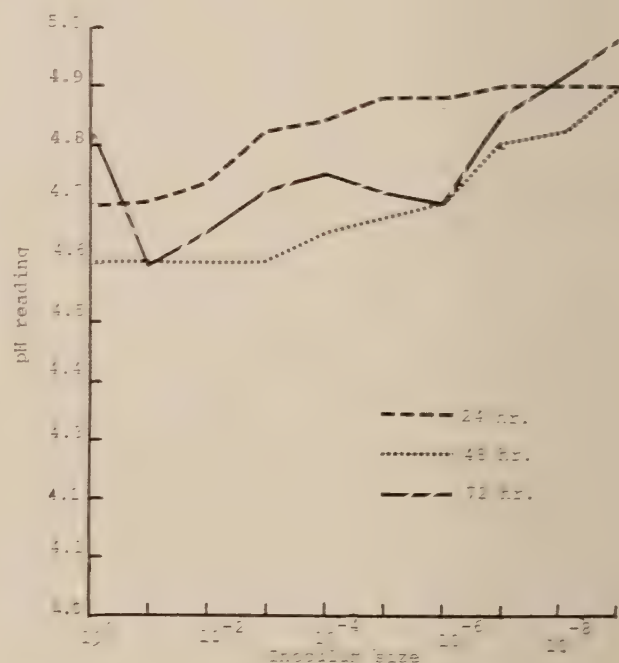


FIGURE 7 Effect of decreasing inoculum size on pH readings in swab test cultures of *Staph. epidermidis* (2-7) following incubation for 24, 48 and 72 hours. The inocula were log dilutions of a 24 hour TS broth culture at an original concentration of 3.6×10^8 cells/ml. as determined by plate count.

was investigated. The organism was a non-pigment producing *Serratia marcescens* (E₂). It was part of the oral flora of a caries-resistant individual. Figure 8 shows the pH readings in relation to inoculum size following 24, 48 and 72 hour aerobic and anaerobic incubation in swab test medium. Most of the cultures showed pH reversals. Anaerobic growth was restricted and the pH did not rise above 5.3. However, the pH readings of aerobic cultures varied greatly between 4.85 and 6.1.

Combination Experiments.—Combinations of some of the representative organisms previously studied were inoculated into swab test medium. Using dilutions 10^0 to 10^{-8} of two organisms for each series, all the possible combinations were made by

separately inoculating the required dilution of each organism into the swab test medium. Swab test cultures of log dilutions of each organism alone served as controls for the experiments.

The combination experiments were characterized by low pH readings when the inoculum of the *Lactobacillus* JN₁ was substantial (dilution below 10^{-3}). Smaller inocula of the same lactobacillus were, however, obscured by growth and metabolism of the other combinant, and did not express themselves in terms of the pH readings. The resultant pH of the mixed culture was even modified in cultures where the lactobacillus inoculum was below 10^{-3} (Figures 9 and 10). The pH readings of the controls were also plotted on the graphs to facilitate comparison.

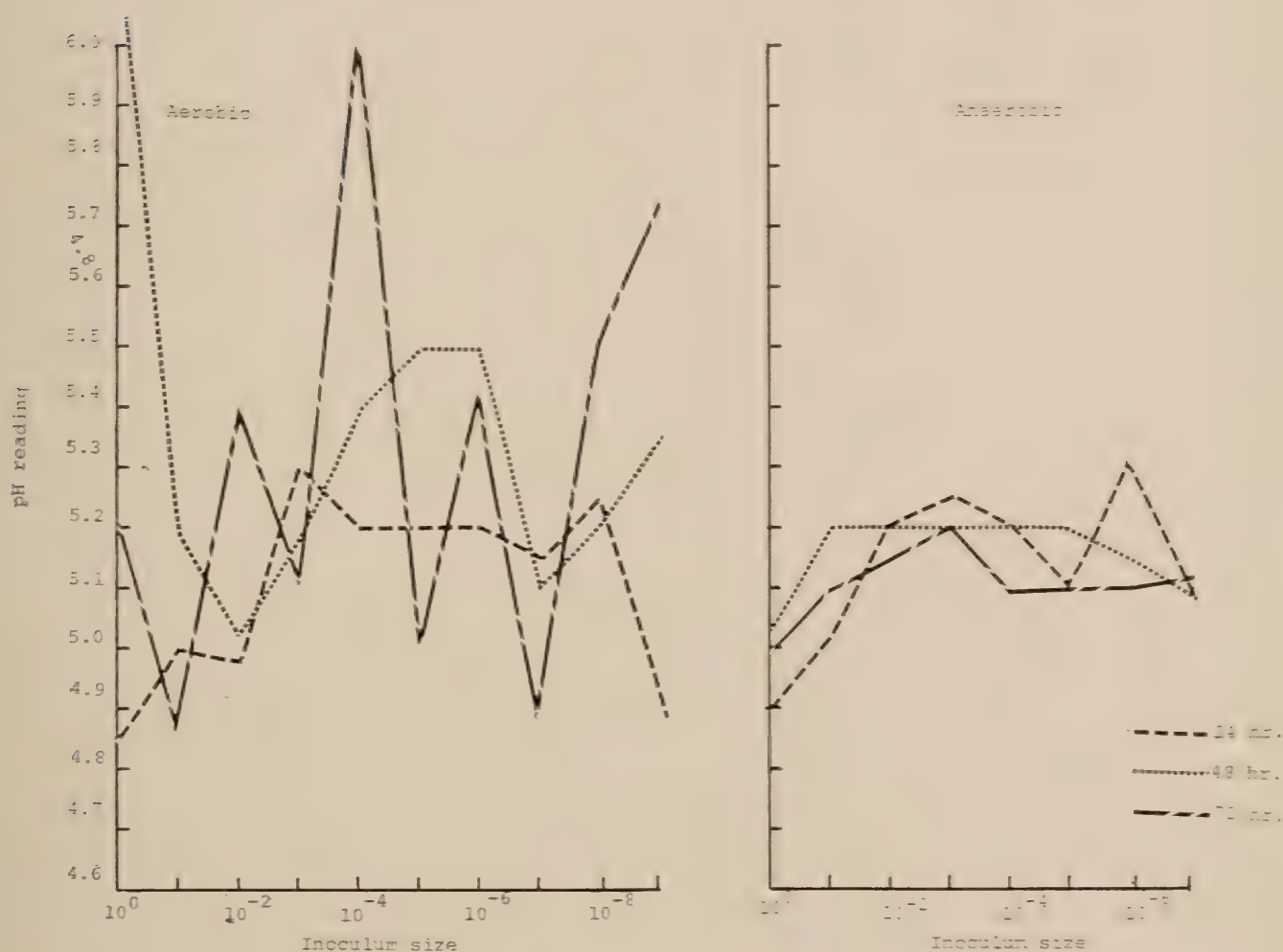


FIGURE 8 Effect of decreasing inoculum size on pH readings in swab test cultures of *Serratia marcescens* (E₂) following incubation for 24, 48 and 72 hours under aerobic and anaerobic conditions. The inocula were log dilutions of a 24 hour TS broth culture at an original concentration of 4×10^8 cells/ml. as determined by plate count.

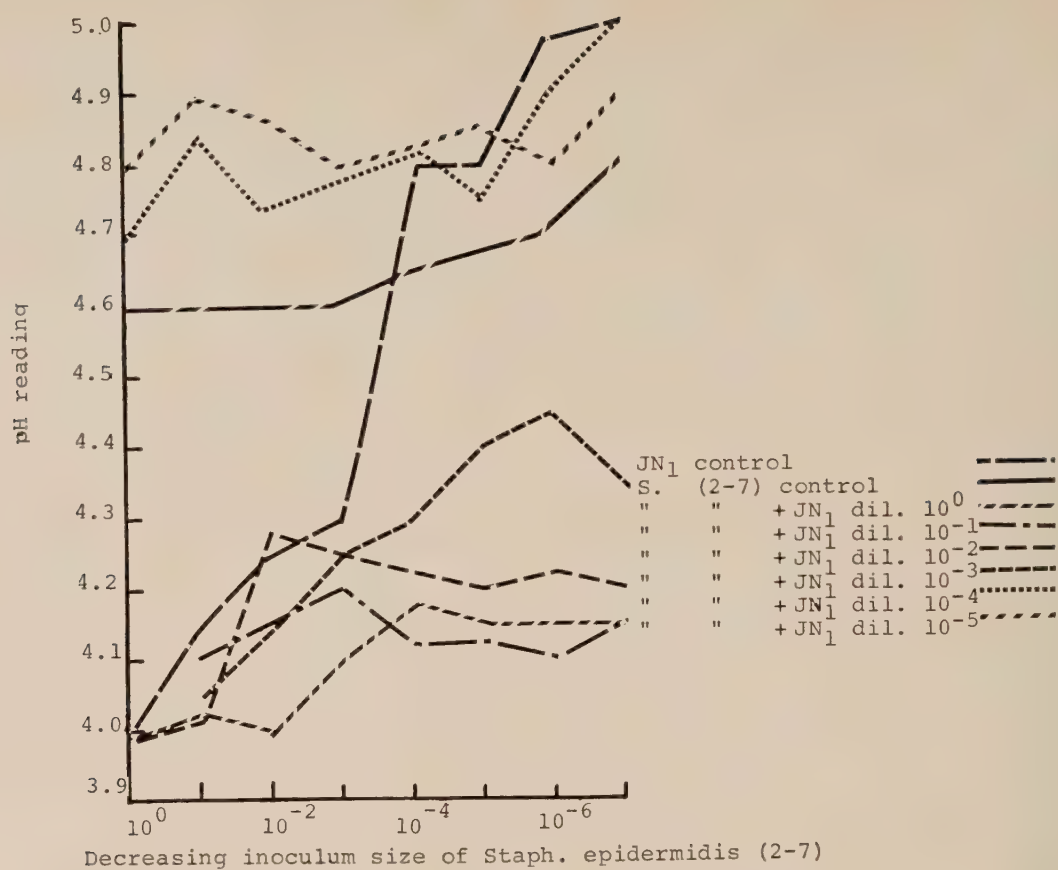


FIGURE 9 Effect of decreasing inoculum size on pH readings at 48 hours in swab test cultures of *Staph. epidermidis* (2-7) when combined with varying inocula of *Lactobacillus JN₁*. The inocula were log dilutions of 24 hour TS broth cultures at original concentrations of 3.6×10^8 cells/ml. for *Staph. epidermidis* (2-7) and 5×10^8 cells/ml. for *Lactobacillus JN₁* as determined by plate count.

Effect of Inoculum Size on Swab Test Medium. — The previous experiments with single isolates had demonstrated the effect of inoculum size on the subsequent pH. These experiments were duplicated by quantitating the swab samples and also using serial dilutions of paraffin-stimulated saliva for inoculation. Reduction of the inoculum to a certain critical level produced only minor pH changes (0.1 - 0.3 unit). Further reductions beyond that level had more pronounced effects (> 0.5 unit). A few reversals of pH occurred when the usual inoculum size (0.2 ml. paraffin-stimulated saliva) was reduced a hundredfold. Variation in the inoculum size of direct samples from the mouth was characterized by considerable inconsistency in the results.

DISCUSSION

Low pH readings were found to be associated with lactobacilli while middle

and high pH readings were associated with a variety of unrelated organisms. These organisms are streptococci, staphylococci, micrococci, lactobacilli and (enteric) gram negative rods in order of their frequency of occurrence. Consequently, the interpretation of pH readings at the upper ranges is complicated by the differences in glucose metabolism that occur in a mixed culture.

Glucose metabolism in the family Lactobacillaceae, comprising *Lactobacillus* and *Streptococcus* genera, is characterized by homolactic or heterolactic fermentation and results in acidic end products. Consequently, the growth and metabolism of these organisms should be in linear relationship to the total acid produced. This is clearly illustrated in Figures 2 and 5 by the pH readings obtained with *Lactobacillus JN₁* and *Streptococcus* (7-1). The unexpected pH readings obtained with the rough *Lactobacillus JN₂* (Figure 3) seem to imply that pH readings may not always be a completely reliable indicator of lactobacillus activity

in the swab test medium. This organism, however, ferments glucose in the expected manner when inoculated into TS broth with 2 per cent glucose.

The organisms of the other bacterial groups recovered from the swab test cultures possess varying fermentative and oxidative capacities for carbohydrate util-

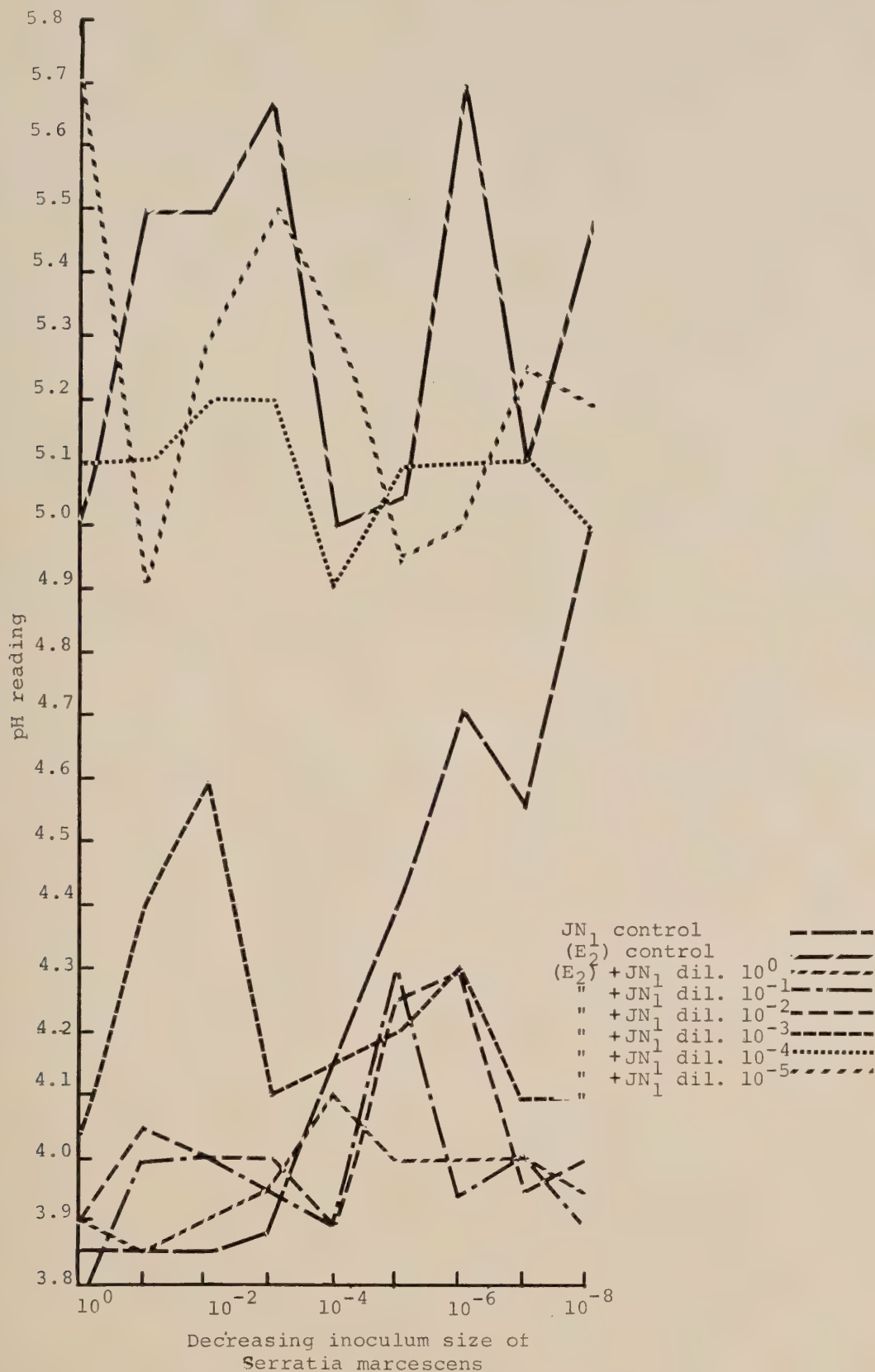


FIGURE 10 Effect of decreasing inoculum size on pH readings at 48 hours in swab test cultures of *Serratia marcescens* (*E₂*) when combined with varying inocula of *Lactobacillus JN1*. The inocula were log dilutions of 24 hour TS broth cultures at original concentrations of 1.5×10^9 cells/ml. for *Serratia marcescens* (*E₂*) and 1.9×10^9 cells/ml. for *Lactobacillus JN1* as determined by plate count.

ization, resulting in non-acidic end products. Consequently, pH measurements are not in linear relationship to the growth and acid-producing ability of these organisms (Figures 4 and 8). In a mixed culture the oxidative organisms can further metabolize the acid produced by the fermentative components of the flora and thus raise the pH of the culture. This effect is illustrated by some of the combination experiments (Figures 9 and 10). The results suggest that the actual number of a given organism, the environmental conditions of the swab test medium and the metabolic end products, rather than the presence or absence of direct bacterial antagonism, determine the 48 hour pH of the culture. The fact that lactobacilli occur at all pH ranges in combination with the other organisms during the isolation experiments substantiates this view. Moreover, lactobacilli always lower the pH greatly when large quantities are inoculated either alone or in combinations. This does not happen when the inoculum falls below a threshold level.

Oral yeasts, isolated from swab test cultures of all three pH ranges (Figure 1), may be a source of confusion in the pH readings. Because of their fermentative and oxidative glucose metabolism, no conclusions can be drawn from the readings of their cultures. Yeasts even grow at refrigeration temperatures and alter the pH of stored cultures.

The pH readings of cultures inoculated with log dilutions of *Lactobacillus* JN₁ following 48 hour incubation increase abruptly when a particular dilution is reached (Figure 2). This demonstrates the sensitivity of these cultures to decrease of inoculum size. To initiate growth in the swab test medium the inoculum must be a thousand times greater than that for TS broth medium. In mixed cultures, moreover, only the heavy inocula of *Lactobacillus* JN₁ can express themselves in terms of pH, whereas the higher dilutions are obscured by the presence of the other organisms (Figures 9 and 10).

Routine clinical inocula may often be insufficient to initiate growth of lactobacilli or other organisms (Figure 1). On the other hand, swab test media inoculat-

ed with paraffin-stimulated saliva always show growth of some organisms even when a known lactobacillus-negative saliva is used. Hence, swab test cultures showing no growth must be considered unsuccessful and should be disregarded.

CONCLUSIONS

The pH reading in the low pH range is generally related to the growth of fermentative organisms, but the metabolism of oxidative organisms precludes a similar relationship at the higher ranges. Hence, pH readings cannot be directly interpreted in terms of bacterial growth.

All of this substantiates the unreliability of pH readings at the middle pH range.⁸ We therefore concur with the need⁸ for a strictly selective medium for the lactic group of bacteria. This would eliminate mixed growths and thus render pH measurement a simple and reliable index of the growth of the lactic group of organisms.

This study, conducted at the Faculty of Dentistry, University of Toronto, was supported by a grant from the Associate Committee on Dental Research of the National Research Council of Canada.

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Faculty of Dentistry,
University of Toronto



Winnipeg's Norquay Building, home of the Manitoba Health Department, is also the nerve centre for the province's dental health service.

Manitoba puts 'teeth' into health education

Manitoba's provincial dental health service has intensified its efforts in dental health education in rural areas of the province since last fall. A travelling dental hygienist and several dental assistants, accompanied whenever possible by a dentist or a regional dental director, are taking comprehensive educational programs to rural Manitoba schools. From the United States border to northern points such as Pelican Rapids, Westgate Barrows, Wabowden and Thompson, these teams are working in close cooperation with local health units, dentists, school officials and teachers.

Between October and November 1967, almost 8,000 children in 91 rural elemen-

tary schools were given a wide variety of educational material. This one month figure closely approximates the 9,885 children in 151 country schools who received dental health material in a nine month period between September 1966 and June 1967.

With each school visit a teacher is given plaster models of full sets of teeth, adult and juvenile sizes, and plaster replicas of the six year molars (three times the actual size). Included with these models is a copy of *Frontiers of Dental Science*, a book written in language teachers appreciate, and prepared in collaboration with dentists and teachers. This book is presented to school libraries.



Four of the dental health pamphlets produced by Manitoba dental health service.

A unique feature of the material taken to schools is the portable library. Each of the province's four regional dental health offices is equipped with a compact kit which may be left for a week or more in

the school library. One of the purposes of these kits is to inspire a considerable number of students to study toward careers as dentists, dental hygienists and dental assistants.

Left: H. J. Short, dental director of Manitoba's Interlake region, and C. H. McCormick, provincial dental director, discuss dental health education plans for one of the province's rural areas. Right: Dental Assistant Jacqueline Andrews, Secretary Myrna Pope and Dr. McCormick finalize the details.





Jacqueline Andrews has the rapt attention of a group of grade 1 children during a dental health lesson.

Response to the booklets, posters, brochures and films brought by the dental teams has been good. Teachers and public health nurses make good use of this aid to health courses, as is evidenced by the 109 requests for information to the provincial dental services between October and early December 1967. Health department officials have also reported an increased interest in dental health among children, parents and teachers since the intensified program began.

Local dentists are also visited by the dental education team in order to stimulate interest and cooperation. Dental health material is displayed at all dental conventions in the province. Included in the stocks of available material are pamphlets produced by the Canadian Dental Association. When suitable material for a specific area of interest is not readily available, the provincial dental health service produces its own.

"A large part of the success of our program," says C. H. McCormick, director of the provincial dental health service, "is due to the enthusiastic work of our dental assistants. It's refreshing to see the interest they take in their work. One of them gave up her holiday time last summer in order to attend a health education seminar conducted annually in Winnipeg by provincial health educators."

"These young women must be adaptable," Dr. McCormick points out. "They must be able to fit into the life of a small community during temporary stopovers ... and of course they have to like to travel."

The young women have a one-day-a-month training and refresher course in the Winnipeg headquarters of the provincial dental health service. They are encouraged to develop their own talks and programs and to choose their own approach to the children.

Governors Approve \$25 CDA Grant Increase; Accept Children's Plan

Increased per capita grants to the CDA from its corporate members were authorized by the Association's Board of Governors at Vancouver. The Board urged that corporate members raise their contributions by \$25 to \$65 per member in the near future.

In another key action the Board accepted the CDA Dental Health Plan for Children. The plan offers guidelines for integrated preventive, educational, diagnostic and treatment services for children to the age of 18. It was developed in accordance with 1966 and 1967 directives from the Board of Governors. (More on the children's program appears elsewhere in this issue's news section.)

Officers Elected, Installed

Henri Brouillet, Montreal, was installed by William Miller as 48th president of the Canadian Dental Association. He succeeds W. P. Munsie of Vancouver.

Born at l'Assomption, Que., Dr. Brouillet graduated from the Université de Montréal in 1945. Following service with the Royal Canadian Dental Corps, he returned to Montreal where he began to practise in 1946. Dr. Brouillet also taught at the Université de Montréal from 1946 to 1955, attaining the rank of associate professor. Elected to the Board of Governors of the College of Dental Surgeons of

the Province of Quebec in 1948, Dr. Brouillet became its vice-president 1960-62 and president 1962-66. He has represented the Quebec College on the CDA Board of Governors since 1966 and was elected to the CDA Executive Council in 1967. Dr. Brouillet is a fellow of the International College of Dentists.

H. R. MacLean, dean of the University of Alberta's Faculty of Dentistry, Edmonton, was chosen president-elect. A member of the CDA Board of Governors since 1963, Dr. MacLean was elected to the Executive Council in 1965. He is a former president of the Edmonton and District Dental Society, Alberta Dental Association, National Dental Examining Board of Canada and the Canadian Section of the International College of Dentists.

Chosen as members of the Executive Council were: A. L. MacIsaac, Charlotte-

Record Registration

Registration at the national convention reached 2,239, a record for a CDA meeting in Vancouver. Of those who registered, 1,370 were CDA members, 36 were from abroad, 86 were dental hygienists, 130 were dental assistants and 92 were exhibitors. There were also 525 wives registered.

town, PEI; W. J. Spence, Toronto; J. B. Taylor, London, Ont.; and Louis Bernier, Quebec City.

Elected as chairmen of councils and committees were Henri Brouillet, Montreal, Executive Council; J. P. Whyte, Swift Current, Sask., Constitution and Bylaws; W. J. Dunn, London, Ont., Council on Education; R. M. Le Blanc, Montreal, Council on Ethics; H. H. Canning, Toronto, Council on Journalism; M. M. Derrick, Ottawa, Council on Legislation; K. W. Davey, Toronto, Council on Public Health; L. E. Francis, Montreal, Council on Research; Max Nacht, Vancouver, Auxiliary Services Committee; Roger Charette, Montreal, 1969 Convention Committee; P. E. Currie, London, Ont., Dental Services Committee; J. Kreutzer, Toronto, Headquarters Property Committee; P. T. Smylski, Toronto, Hospital Services Committee; H. R. MacLean, Edmonton, Nominations Committee; and O. J. Yule, Toronto, Specialists and Specialization Committee.

Honorary membership in the CDA was conferred on H. M. Cline, Vancouver, who served as president in 1950-51.

Distinguished guests included W. Stewart Ross of London, England, president of the Fédération Dentaire Internationale; F. Darl Ostrander of Ann Arbor, Mich., president of the American Dental Association; and H. D. Dalgleish of Saskatoon, president of the Canadian Medical Association.

'Prevention' Stressed in CDA Children's Plan

The Canadian Dental Association, after spirited debate, accepted the CDA Dental Health Plan for Children at the national convention in Vancouver. The document calls for "a comprehensive" attack on a national problem.

"The objective of the CDA plan is to improve the dental health of children by preventing the need for treatment," stated the report accepted by the Board of Governors. It sets forth guidelines for educational and preventive measures, diagnostic benefits and prepaid treatment when necessary.

The plan recommends use of federal, provincial and private funds. Beginning with children aged 0-3, it would extend annually to children one year older until all are covered up to age 18.

Wherever possible diagnosis and treatment would be by private dentists and payment would be on a fee-for-service basis according to provincial fee schedules. Eligible children would be encouraged to enrol in voluntary prepayment plans. These plans would either pay participating dentists for services rendered to covered children or reimburse beneficiaries who are treated by non-participating dentists. Provincial fee schedules should be automatically renegotiated every two years, the report stated.

Along with the provision of dental care would go an intensive program of health education. The report also stresses the importance of accompanying preventive measures and calls on the provinces to pass legislation for compulsory fluoridation.

To attract dentists to underserved areas, the report advocates \$10,000-\$20,000 interest-free loans for establishing private practices, guaranteed incomes proportional to the percentage of children treated in practice, and subsidies to bring general practitioners and specialists to areas capable of supporting private practice.

As a further inducement provincial health authorities could establish practices in consultation with provincial dental organizations. Salaried dentists who staff the practices would be paid incomes comparable to earnings in private practice. After caring for children in the area, these dentists would treat other patients on a fee-for-service basis. The practices would ultimately be sold to the salaried dentists or to other private practitioners when they yield net incomes comparable to the revenue from similar private practices.

The report proposes provincially employed travelling dentists to provide care in remote or sparsely populated regions. It also suggests the establishment of hospital-affiliated community dental centres to provide comprehensive and continuous dental services to patients of all ages. Children whose parents will not obtain



CDA Board of Governors faced a heavy schedule of important issues in Vancouver.

treatment from private practitioners could obtain dental care in these centres.

Covered services would include semi-annual clinical examinations and radiographs when necessary for diagnosis, emergency care to alleviate pain and treat acute infections or injuries, restoration of carious lesions, necessary extractions, prevention and treatment of early periodontic lesions, prevention and interception of malocclusion by measures normally performed in general practice, more advanced treatment for traumatic injury or acute infection, and scaling and polishing when necessary. Other services would require prior authorization, says the report. Additional orthodontic services could be included when the number

of orthodontists increases.

Stressing the role of continuing research, the report urges that 5 per cent of total program costs be allocated to studies of motivation, utilization, prevention, financing, administration, productivity and program evaluation. "Samples of children should be examined at regular intervals by teams of dentists appointed by the provincial dental organizations. This evaluation . . . by the dental profession would assure the public and provincial and federal government agencies that the program was continuing to provide the highest quality of service."

Provincial dental organizations would establish review and prior authorization committees to assist dentists and agencies



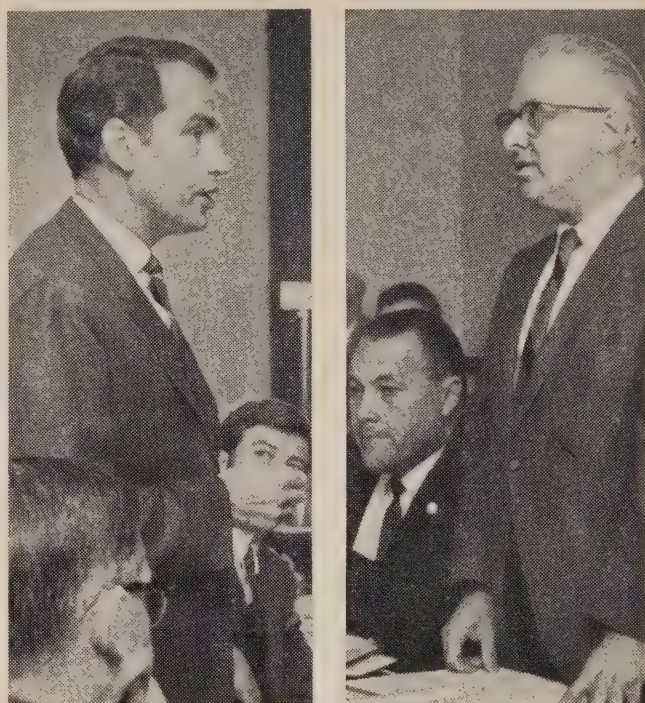
Prior to consideration by the Board of Governors, issues were debated with some warmth and vigour in the reference committees. The committee shown above which considered the role of the CDA in future development of the dental profession advocated closer liaison with corporate members. Its resolution received overwhelming approval from the Board.

which administer diagnostic benefits for all children and prepaid treatment benefits for enrolled children. Grievances, says the report, would be handled separately by present grievance procedure mechanisms.

The report also envisions the formation of provincial dental councils and a national dental advisory body. The national body would have dental, lay and government representatives nominated by the CDA and the federal government. It would advise the federal government on national aspects of the plan. A provincial council would have 60 per cent of its members appointed by the provincial dental organization and 40 per cent nominated by the provincial government. The provincial council would help to co-ordinate preventive and treatment services. It would recommend needed personnel and facilities and would also update the list of covered services from time to time. The provincial council would receive financial and statistical reports from the administrative agency and the dental division of the provincial health department and would report annually on the plan to the provincial government.

Nearly seven million children aged 0-14 (28 per cent of the total population) would be eligible to receive services by 1980, says the report. It does not, however, anticipate a 100 per cent rate of utilization. If 60 per cent participated they would need 3,400 dentists (43 per cent of available full-time practitioners) for diagnostic and treatment services. The cost of these benefits could exceed \$175 million. This estimate could be modified by further increments in the dentist's productivity, reduced treatment needs resulting from preventive measures and maintenance care, additional technological innovations, expanded duties for dental auxiliaries and further breakthroughs in dental research.

In voting acceptance of the plan, the Board of Governors recommended that the CDA and corporate members approach federal and provincial governments and seek financial assistance to conduct demonstration projects based on the guidelines established within the plan.



The CDA Children's Dental Health Plan generated spirited debate. Dean W. J. Dunn, University of Western Ontario (left), and D. L. Rife, secretary-treasurer, Canadian Society of Dentistry for Children, discuss the role of preventive services in the plan which was later accepted by the Board.

New Policy on Specialties Approved

The Board of Governors approved a new policy on the "recognition of specialty areas of dental practice." A specialty area of dental practice is defined as "one in which advanced training: (1) includes a knowledge of the basic sciences related to dentistry well in excess of that normally accruing from the undergraduate program in dentistry; (2) includes the acquisition of a body of clinical knowledge and expertness significantly beyond the knowledge and skill normally accruing from an undergraduate program in dentistry; (3) can be made available at approved universities, dental schools, teaching hospitals or other institutions, and where a course or courses have been accredited or are eligible for accreditation by the Canadian Dental Association's Council on Education; and (4) leads to a diploma, degree or equivalent recognition attesting to successful completion of the approved course, and is a program consisting of a minimum of two academic years' duration."

The Board also:

—Redefined a dental specialist as "a dentist who meets the requirements for practice in a recognized specialty area of dental practice, the criteria for which are outlined in the CDA policy statement on recognition of specialty areas of dental practice;"

—Voted to accept as a new definition of periodontics: "that branch of dentistry devoted to diagnosis, prevention and treatment of diseases which affect the supporting tissues of the teeth and associated structures;"

—Approved continuation of the present moratorium on the recognition of additional specialties and sections; and

—Asked that corporate members and specialty sections submit their views on a proposal to group present specialties into divisions [tentatively: stomatology, restorative dentistry, social and preventive dentistry] for educational and administrative purposes.

Board Defers Action on Auxiliaries

The Board of Governors, at Vancouver, voted to refer back to the Auxiliary Services Committee and to the corporate members a resolution favouring a larger role for dental auxiliaries. The action was taken on a resolution (1) reaffirming the dentist's responsibility for treatment rendered to the public and (2) asserting his right to delegate duties that do not require the knowledge and skill of a dentist. The resolution stated: "... that it is the dentist ... who must be responsible for the standards and quality of dental treatment rendered to the public; and ... that in assuming this responsibility it is the right of a dentist, under the regulatory oversight of the licensing authority by which he is licensed, to delegate to persons over whom he exerts effective supervision and control, such duties as do not require for their performance the professional knowledge and skill of the dentist" The resolution had asked provincial licensing boards to implement these principles. It had also urged that the doctrine of the ultimate responsibility

of the dentist be clearly and unequivocally enunciated, and that any serial listing of services which may be legally performed by auxiliary personnel be eliminated.

Adopt New Prepayment Principles

The Board adopted, after lengthy debate, new "principles for dental prepayment plans." This document offers guidelines for plans that accord with CDA policies.

The Board also approved a standardized treatment claims form and concurred with reciprocal appointment of a member of the Auxiliary Services Committee and a member of the Dental Services Committee as ex officio members of each other's committees.

PRINCIPLES FOR PREPAYMENT PLANS

1. Treatment procedures without preventive care by the dentist and patient will produce treatment failure.

2. A plan which will provide comprehensive care should produce better dental health for the recipients. Such care should include specialty services.

3. Co-insurance principles should probably prevail for most if not all treatment procedures.

4. Patients should be free to choose their own dentist and, conversely, the right of dentists to select patients should be assured.

5. Prior authorization for covered services should not be required except in extreme situations.

6. Treatment, wherever possible, should be provided by dentists in private practice, and all licensed dentists should be eligible to participate.

7. The basis of payment of services should be the dentist's usual fees of the schedule of fees established by the appropriate provincial dental organization.

8. Contracts and promotional literature should clearly state the dental benefits covered by the plan as well as the restrictions and any conditions that might be relevant.

9. The financial reserves of the plan should be adequate to ensure continuity of the program.

10. Plans should include adequate provision for the impartial adjudication of all controversies. Professional standards and discipline, however, must be the responsibility of the appropriate licensing authority.

11. Promotional literature should: (1) conform to ethical standards within the profession; (2) encourage maximum utilization of a prepayment plan; and (3) stress continually and specifically the preventive aspects of dental care.

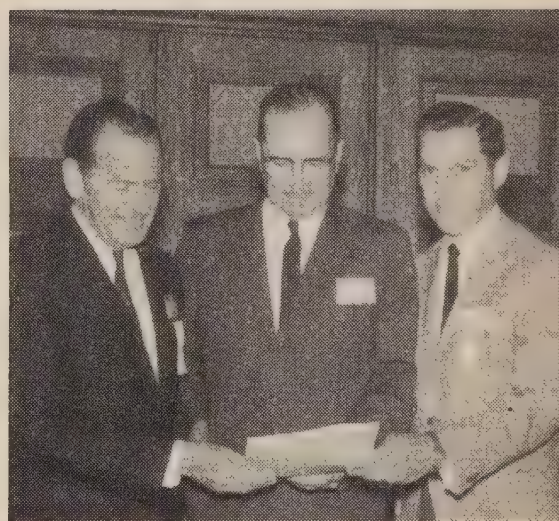
12. Standardized forms and nomenclature should prevail throughout the entire prepayment field.



Above left: Outgoing CDA President W. P. Munsie, CDA President Henri Brouillet, American Dental Association President F. D. Ostlander and FDI President W. Stewart Ross. Centre: J. P. Coupland pins past president's medal on Dr. Munsie. Right: Dr. Munsie and CDA Honorary Member H. M. Cline.



**Henri Brouillet
President**



Outgoing CDA President W. P. Munsie with Canadian Medical Association President H. D. Dalglish and British Columbia Dental Association President A. E. Swanson.

Headtable guests at the June 27 CDA luncheon.



Board Acts on Submitted Resolutions

Several important resolutions were submitted by the Alberta Dental Association, British Columbia Dental Association, Manitoba Dental Association and Montreal Dental Club. The Board:

—Directed that the Canadian Dental Association provide adequate remuneration for the president during his term of office;

—Referred to the Convention Subcommittee (of the Executive Council) an invitation to hold a national convention in Alberta after 1973;

—Referred for consideration by the Council on Education a resolution which stipulates that this council should have sole responsibility for the selection and function of dental school accreditation survey teams;

—Directed that the CDA urge appropriate federal government agencies to increase stipends for teacher trainees;

—Instructed the Executive Council to acquaint the Government of Canada with the urgent need for additional dental teachers to meet dental personnel requirements throughout the country, and urged corporate members to make similar representations to provincial governments with a view to the provision of additional public funds in support of teacher training;

—Requested the Council on Public Health to reconsider the question of CDA sponsorship of an annual national children's dental health week;

—Referred to the Subcommittee on Taxation (of the Executive Council) a resolution which asks that the federal government permit dentists to carry forward for income tax deduction any expenses incurred by attending more than two conventions a year [such deduction to be allowable during a three year period following the year in which the conventions occurred]; and

—Asked that (1) the Executive Council urge the Government of Canada to ensure that dentists be paid on the same basis as physicians under any health care plans where payment may be authorized to a physician for services which may be rendered with equal competence by a

dentist; and (2) that the corporate members take similar action with provincial governments.

Board Supports Fluoridation

In still other actions in its busy 1968 session the Board:

—Reiterated its support for fluoridation;

—Endorsed regulations governing Canadian Dental Research Foundation awards for research conducted by graduate and postgraduate students in Canada;

—Asked the Executive Council to consider the appointment of a chairman for the Board of Governors meeting (other than the president);

—Urged corporate members to set up liaison committees to provide more effective communication with the CDA;

—Approved the periodic reassessment of previously approved hospital dental services;

—Asked that the Council on Constitution and Bylaws consider the feasibility of having the treasurer elected by the Board of Governors;

—Urged corporate members to establish liaison with corresponding provincial medical organizations;

—Requested that the Executive Council invite representatives of corporate members to an 'aims and objectives' conference to determine priorities for services to be furnished by the Canadian Dental Association;

—Asked that the Nominations Committee consult with recognized specialty groups when nominating personnel to the Specialists and Specialization Committee; and

—Approved a 1969 budget providing for an estimated revenue of \$297,000, estimated expenditures of \$330,800 and an estimated deficit of \$33,800.

Insurance Merger Proposed

The Board of Governors in Vancouver accepted a proposal to merge group life, office overhead and income protection in-

insurance programs sponsored by the Canadian and Ontario Dental Associations. The recommendation emanated from a joint meeting of the Advisory Insurance Committees of the two associations held June 11.

The Board agreed to the establishment of an ad hoc CDA-ODA committee to supervise merger negotiations. These are expected to take several months. The ad hoc committee was also asked to develop recommendations for the collection of insurance premiums for the merged group plans.

Also approved was a proposal to establish a seven member standing committee on commercial insurance. Administration of the merged insurance plans will be one of the committee's responsibilities.

Board Approves Emblem for Dentistry

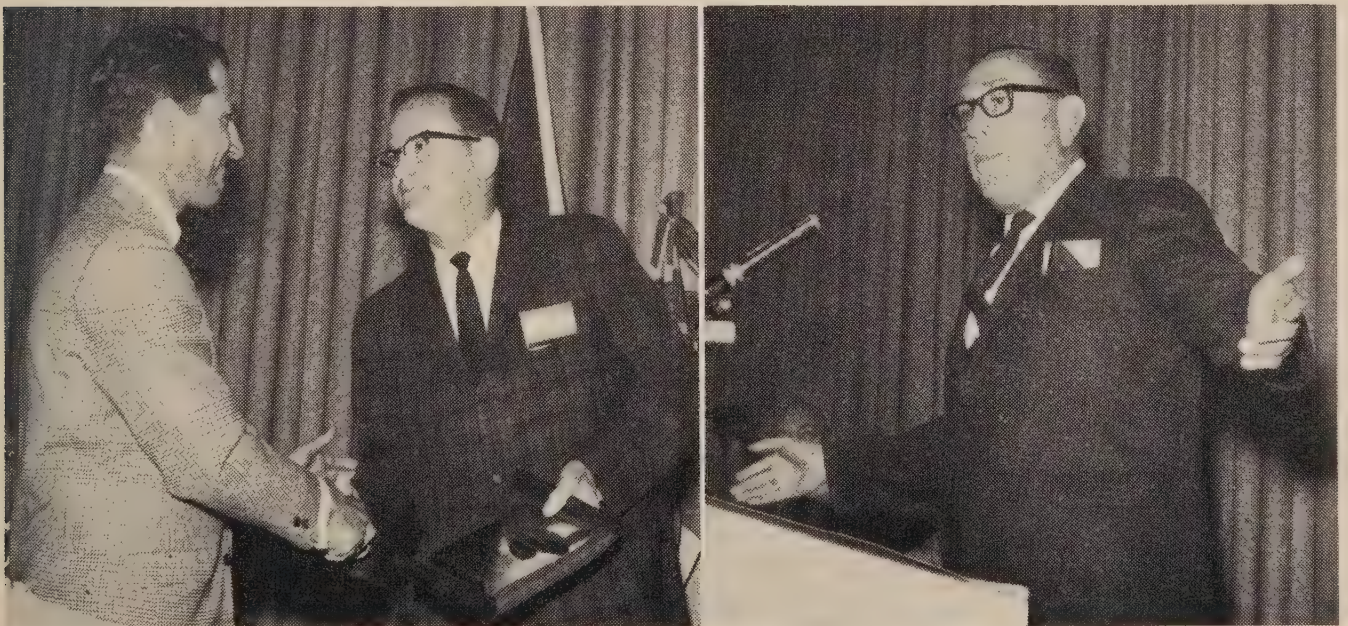
The Board of Governors has approved an emblem symbolic of Canadian dentistry. The design uses as its central figure a single serpent coiled around a club-like staff. The Greek letters delta and omicron form the periphery of the design. When printed in full colour the background is in green, the letter omicron is in gold, the letter delta is in black, and the serpent and staff are outlined in

black on the green background. The emblem is suitable for adaptation by any dental organization which may incorporate its name above or below the periphery of the letter omicron.

Highlights of the Vancouver Convention

The three day scientific program presented June 27-29 was the most comprehensive ever scheduled at a CDA national convention. It began on Wednesday evening, June 26, with a registration cocktail party at the Bayshore Inn.

Thursday. G. D. Stibbs of Seattle, Washington, led off on Thursday morning with an essay entitled "The Whole Profession." I. B. Stern, also of Seattle, described the structure of the periodontium in health and disease. C. A. Sweet of Walnut Creek, Calif., discussed pulp therapy in paedodontics. T. J. Harrop, Vancouver, described "Teaching Service and Research," while P. R. Dow, also of Vancouver, described new endodontic concepts reflected by apical growth induction in root canals. In an essay entitled "Amalgam," Rex Ingraham of Los Angeles reported the latest findings on fine and micro-cut amalgam alloys. S. J. Kloehn of



Left: British Columbia President A. E. Swanson congratulates H. G. Pettapiece, Parksville, on being named British Columbia's 'dentist of the year.' Right: BC Provincial Secretary W. D. Black explained his province's approach to medicare during the June 28 BC Government luncheon.

Appleton, Wis., who delivered the George Wellington Grieve Memorial Lecture, discussed new concepts in the analysis and treatment of malocclusion. "The Role of Free Gingival Grafts in Periodontic Therapy" was described by H. C. Sullivan, also of Seattle.

Periodontic curettage and maintenance techniques were outlined on Thursday afternoon by Seattle periodontist Saul Schluger. Dr. Sweet lectured on "Paedodontics of Yesterday and Today," while orthodontist A. J. Haas of Cuyahoga Falls, Ohio, described palatal expansion. S. J. Fisher of Victoria chose oral surgery for his subject, while D. H. Glick of Beverly Hills, Calif., reviewed his successes and failures with endodontic treatment. S. C. Robinson, Portland, Ore., outlined the proper placement of artificial anterior teeth for best aesthetic and functional results. Efficient office design and optimum use of trained personnel were described by Dr. Ingraham in an essay titled "Four-Handed Dentistry." W. R. Mayne of Salem, Mass., concluded the Thursday afternoon program with comments on orthodontic serial extractions.

Friday. E. Bannister and W. M. Joiner, Vancouver, continued on Friday morning by giving their recommendations on how the modern dentist should remain physically fit. The principles of compatible occlusion were described by Dr. Ingraham, while Dr. Schluger spoke on periodontic surgery. R. E. Jordan and W. R. Teteruk of London, Ont., gave an illustrated lecture on restorative dentistry. Dr. Kloehn, describing the analysis and treatment of Class II malocclusion, commented on the application of cervical appliances in treatment of the mixed dentition. Techniques and materials to maintain oral health and conserve tooth structure during a high-decay period were outlined in Dr. Stibbs' essay on "Dentistry for the Teenager." Vancouver dentists Neil Basaraba, G. A. Drennan and G. R. Thorardson presented a series of periodontic case reports, while F. J. Musaph described temporomandibular joint disorders. A. H. L. Campbell, also of Vancouver, concluded the morning program with a description of three-quarter crown preparations and patterns.

C. R. Castaldi, Winnipeg, led off on Friday afternoon with a second essay on dentistry for the teenager. Concurrently, the British Columbia Dental Services Association presented a round table discussion on prepaid dental plans. Amalgam technique was the subject of a presentation by Seattle's F. L. Jacobson and associates. They described rubber dam procedure, cavity preparation, matrix application, manipulation and insertion of the filling material, finishing the restoration and pin techniques. George Ellsperman of Bellingham, Wash., outlined restoration of the single tooth. Dr. Mayne concluded his earlier remarks about orthodontic serial extraction, while Dr. Ingraham also completed his presentation on occlusion. Jean T. Hodson of Seattle had a prominent role in the program. She discussed the properties, manipulation and compaction of gold restorative materials, while Dr. Schluger described management of the periodontic pocket. Dr. Haas spoke on orthodontic treatment of borderline cases in the mixed dentition period.

The CDA Dental Health Plan for Children received special attention at a symposium on Friday afternoon. Panel members were President W. P. Munsie, President-elect Henri Brouillet and W. J. Spence.

Saturday. Dr. Jacobson and his associates repeated their presentation on amalgam technique on Saturday morning. Dr. Stibbs followed up with a discussion of the properties and techniques in cast gold restorations. Dermatologist Ferdinando Serri of Pavia, Italy, described oral mucosa changes in certain skin diseases, while J. D. Spouge, Vancouver, spoke on the topic of oral pathology. The scientific program concluded with a round table discussion on occlusion.

Social Events. Three official luncheons, two dinners and a ball provided the social highlights of the convention. The official CDA luncheon was held on Thursday. The Friday luncheon was tendered by the Government of British Columbia. The President's Fiesta and Ball brought the convention to a close on Saturday night.

Les gouverneurs approuvent une augmentation de \$25 du subside à l'ADC et acceptent le programme pour les enfants

Le Conseil des Gouverneurs de l'Association, réuni à Vancouver, a autorisé l'augmentation des subsides par dentiste que paient à l'ADC les organisations qui en font partie. Le Conseil a demandé que les organisations membres augmentent de \$25 leurs contributions par membre, pour les porter sous peu à \$65.

Le Conseil a également pris une autre décision importante, celle d'accepter le programme de santé dentaire pour les enfants proposé par l'ADC. Ce programme offre des directives pour les services de prévention, d'éducation, de diagnostic et de traitement pour les enfants jusqu'à l'âge de 18 ans. Il a été établi conformément aux directives données par le Conseil des Gouverneurs, en 1966 et 1967. (De plus amples renseignements sur le programme pour les enfants suivront dans ce numéro.)

Election et investiture des dirigeants

Le Dr Henri Brouillet, de Montréal, a été investi par William Miller, en tant que 48^e président de l'Association dentaire canadienne. Il succède au Dr W. P. Munsie de Vancouver.

Né à l'Assomption, Qué., le Dr Brouillet reçut son diplôme à l'Université de Montréal en 1945. Après avoir servi dans le Corps dentaire royal du Canada, il revint à Montréal, où il commença à

exercer en 1946. Le Dr Brouillet enseigna aussi à l'Université de Montréal de 1946 à 1955, où il obtint le titre d'assistant professeur. Elu en 1948 au Conseil des Gouverneurs du Collège des chirurgiens-dentistes de la Province de Québec, le Dr Brouillet en devint vice-président de 1960 à 1962 et président, de 1962 à 1966. Il représente le Collège du Québec au Conseil des Gouverneurs de l'ADC, depuis 1966 et fut élu au Conseil exécutif de l'ADC en 1967. Le Dr Brouillet est "fellow" du Collège international des dentistes.

Le Dr H. R. MacLean, doyen de la Faculté dentaire de l'Université de l'Alberta, à Edmonton a été choisi président-élu. Membre du Conseil des Gouverneurs de l'ADC depuis 1963, le Dr MacLean fut élu au conseil exécutif, en 1965. C'est un ancien président de l'Edmonton & District Dental Society, de l'Alberta Dental Association, du Bureau d'examens dentaires du Canada et de la section canadienne du Collège international des dentistes.

Ont été choisis membres du conseil exécutif, les Drs A. L. MacIsaac, Charlottetown, IPE; W. J. Spence, Toronto; J. B. Taylor, London, Ont.; et Louis Bernier, Québec.

Ont été élus également les présidents des conseils et comités, les Drs Henri Brouillet, Montréal, président du conseil exécutif; J. P. Whyte, Swift Current, Sask., comité des statuts et règlements;

W. J. Dunn, London, Ont., conseil de l'éducation; R. M. LeBlanc, Montréal, conseil de la déontologie; H. H. Canning, Toronto, conseil du journalisme; M. M. Derrick, Ottawa, conseil de législation; K. W. Davey, Toronto, conseil de la santé publique; L. E. Francis, Montréal, conseil de la recherche; Max Nacht, Vancouver, comité des services auxiliaires; Roger Charette, Montréal, comité du congrès 1969; P. E. Currie, London, Ont., comité des services dentaires; J. Kreutzer, Toronto, comité de l'immeuble du siège social; P. T. Smylski, Toronto, comité des services hospitaliers; H. R. MacLean, Edmonton, comité des nominations et O. J. Yule, Toronto, comité des spécialistes et de la spécialisation.

Le Dr H. M. Cline de Vancouver, président en 1950-51, a été nommé membre honoraire de l'ADC.

Parmi les invités de marque, citons le Dr W. Stewart Ross de Londres, Angleterre, président de la Fédération dentaire internationale; le Dr F. Darl Ostrander de Ann Arbor, Mich., président de l'American Dental Association et le Dr H. D. Dalglish de Saskatoon, président de l'Association médicale canadienne.

Le programme de l'ADC pour les enfants insiste sur la prévention

L'Association dentaire canadienne, après des discussions animées, a accepté le programme de santé dentaire de l'ADC à l'intention des enfants. Ce programme représente "l'attaque massive d'un problème national".

"Le programme de l'ADC a comme objectif l'amélioration de la santé dentaire des enfants, en éliminant le besoin de traitement" d'après le rapport accepté par le Conseil des Gouverneurs. Il établit les lignes de conduite qui régiront les mesures éducatives et préventives, les services de diagnostic et les traitements prépayés nécessaires.

Le programme recommande l'usage de fonds fédéraux, provinciaux et privés. Il commencerait par couvrir les enfants jusqu'à trois ans et en s'étendant tous les ans aux enfants qui ont un an de plus, il finirait par les couvrir tous, jusqu'à 18 ans.

Dans toute la mesure du possible, les dentistes privés assureraient le diagnostic et le traitement et seraient payés sur la base des services rendus, d'après les barèmes provinciaux. Les enfants éligibles seraient encouragés à adhérer à des programmes facultatifs prépayés. Ces programmes paieraient les dentistes participants pour les services rendus aux enfants qu'ils couvrent ou bien rembourseraient les bénéficiaires traités par des dentistes non participants. Les barèmes provinciaux d'honoraires seraient renégociés automatiquement tous les deux ans, d'après le rapport.

La provision pour les soins dentaires s'accompagnerait d'un programme intensif d'éducation sanitaire. Le rapport insiste aussi sur l'importance des mesures préventives et demande aux provinces de voter des lois rendant la fluoruration obligatoire.

Pour inciter les dentistes à s'établir dans les régions mal desservies, le rapport propose des prêts sans intérêt de \$10,000-\$20,000 pour l'établissement de pratiques privées, des revenus garantis, proportionnels au pourcentage des enfants traités et des subsides pour amener, dans les régions capables d'alimenter des pratiques privées, des dentistes de dentisterie générale et des spécialistes.

Comme encouragement supplémentaire, les autorités provinciales dans le domaine de la santé pourraient établir des cabinets dentaires, après consultation avec les organismes dentaires provinciaux. Les dentistes salariés qui travailleraient dans ces cabinets recevraient des salaires comparables aux revenus de la pratique privée. Après s'être occupé des enfants de la région, ces dentistes traiteraient les autres patients et seraient payés sur la base des services rendus. Ces cabinets seraient éventuellement vendus aux dentistes salariés ou à d'autres praticiens privés lorsqu'ils rapporteraient un revenu net comparable au revenu d'autres cabinets privés similaires.

Le rapport suggère l'emploi de dentistes itinérants payés par la province, pour desservir les régions éloignées ou peu peuplées. Il suggère également l'établissement de centres dentaires communautaires, affiliés aux hôpitaux, pour fournir des services dentaires généraux



L'assistance était nombreuse aux réunions du Conseil des Gouverneurs mais celle qui a suscité le plus d'intérêt était la session consacrée à "l'estimation pour les cinq prochaines années" des services de l'ADC. Le Conseil a approuvé une augmentation de \$25 des subsides par dentiste payés à l'ADC par les organisations membres.

et continus aux patients de tous les âges. Les parents qui ne feront pas traiter leurs enfants par des praticiens privés pourront leur assurer des soins dentaires dans ces centres.

Les services couverts par le programme comprendraient des examens cliniques semi-annuels et des radiographies pour les besoins du diagnostic, les soins d'urgence pour supprimer la douleur et traiter les infections aiguës ou les blessures, la restauration des dents cariées, les extractions nécessaires, la prévention et le traitement des lésions périodontiques à leur début, la prévention et l'interception de la malocclusion par des traitements de dentisterie générale, des traitements plus avancés pour les dommages trauma-



Le Dr Henri Brouillet
Président



A gauche: les dentistes de l'Est et de l'Ouest ont défini les nouvelles lignes de conduite régissant les spécialités dentaires, au cours des réunions du comité de référence (ci-dessus). Le Conseil des Gouverneurs a approuvé par la suite leurs résolutions. A droite: le Dr Louis Bernier de Québec parle pendant les discussions sur une résolution demandant un rôle plus important pour les auxiliaires dentaires.

tiques et l'infection aiguë, ainsi que le détartrage et le polissage des dents lorsque nécessaires. D'autres services demanderaient une autorisation préalable, d'après le rapport. Lorsque le nombre des orthodontistes aura augmenté, on pourra inclure dans le programme des services orthodontiques supplémentaires.

Le rapport insiste sur l'importance d'une recherche continue et demande que 5 pour cent des coûts totaux du programme soient consacrés à l'étude de la motivation, l'utilisation, la prévention, le financement, l'administration, la productivité et l'évaluation du programme. "Des équipes de dentistes désignées par les organismes dentaires provinciaux devraient examiner des enfants-témoins, à intervalles réguliers. Cette évaluation... par la profession dentaire garantirait au public ainsi qu'au gouvernement fédéral et aux gouvernements provinciaux, la haute qualité des services fournis aux termes du programme.

Les organismes dentaires provinciaux établiraient des comités chargés de la révision et des autorisations préalables, pour aider les dentistes et les agences qui administreraient le diagnostic pour tous les enfants et les traitements prépayés pour les enfants couverts par le programme facultatif. Les réclamations, d'après le rapport, seraient traitées séparément par les mécanismes de réclamations actuels.

Le rapport envisage également la formation de conseils dentaires provinciaux et d'un organisme dentaire consultatif à l'échelle nationale. Cet organisme se composerait de représentants du public, du gouvernement et du monde dentaire, nommés par l'ADC et le gouvernement fédéral. Il conseillerait le gouvernement fédéral sur les aspects nationaux du programme. Soixante pour cent des membres du conseil provincial seraient nommés par l'organisation dentaire provinciale et 40 pour cent par le gouvernement provincial. Le conseil provincial aiderait à coordonner les services préventifs et thérapeutiques. Il déterminerait le personnel et les locaux nécessaires et remettrait à jour, de temps à autre, la liste des services autorisés. Le conseil provincial recevrait les rapports financiers et les statistiques que lui transmettraient les

services administratifs et la section dentaire du Ministère provincial de la Santé et ferait un rapport annuel sur le programme, au gouvernement provincial.

Près de sept millions d'enfants âgés de 0-14 ans (28 pour cent de la population totale) pourraient bénéficier de ces services en 1980, d'après le rapport. On ne s'attend pas à une utilisation à 100 pour cent du programme, mais si 60 pour cent des enfants utilisaient ces services, il faudrait 3,400 dentistes (43 pour cent des praticiens à temps complet existants) pour les services de diagnostic et de traitement. Le coût de ces services dépasseraient \$175 millions. Cette estimation pourrait toutefois être diminuée par une productivité accrue de la part des dentistes, des traitements réduits grâce aux mesures préventives et d'entretien, de nouveaux développements technologiques, des responsabilités plus étendues pour les auxiliaires dentaires et d'autres découvertes par suite de la recherche dentaire.

En votant en faveur de ce plan, le Conseil des Gouverneurs a recommandé que l'ADC et les organisations membres prennent contact avec le gouvernement fédéral et les gouvernements provinciaux pour obtenir leur aide financière afin d'établir des projets pilotes basés sur les principes qui régissent le programme.

Approbation de nouveaux principes régissant les spécialités

Le Conseil des Gouverneurs a approuvé de nouveaux principes pour régir "la reconnaissance des spécialités dans la pratique dentaire". Une spécialité dans la pratique dentaire est définie comme demandant une formation spéciale: (1) qui exige une connaissance des sciences de base alliées à la dentisterie, bien supérieure à celles que dispense le programme dentaire sous-gradué; (2) qui exige l'acquisition d'une connaissance et d'une expertise cliniques bien supérieures aux connaissances et à la compétence que donne le programme dentaire sous-gradué; (3) qui est donnée dans les universités approuvées, les facultés dentaires, les hôpitaux enseignants et autres institutions et où un ou des cours ont été accrédité(s) ou réponde(nt) aux conditions régissant

l'accréditation par le conseil d'enseignement de l'Association dentaire canadienne; et (4) qui mène à un diplôme, degré ou autre titre attestant que le cours approuvé a été terminé avec succès. Ce cours doit consister en un programme académique d'une durée minimum de deux ans.

Le Conseil a aussi:

— redéfini un spécialiste dentaire comme étant "un dentiste qui satisfait aux exigences pour la pratique dans une spécialité reconnue de la dentisterie, pour laquelle l'ADC a établi des critères par une déclaration de principe sur la reconnaissance de branches spécialisées de la pratique dentaire;

— voté en faveur d'une nouvelle définition de la périodontie: "cette branche de la dentisterie qui s'occupe du diagnostic, de la prévention et du traitement des maladies qui affectent les tissus de soutien des dents et les structures connexes";

— approuvé la continuation du moratorium actuel en ce qui concerne la reconnaissance de spécialités et de sections supplémentaires et;

— a demandé que les organisations membres et les sections spécialisées soumettent leur opinion sur une proposition de grouper les spécialités actuelles (on propose stomatologie, dentisterie restauratrice, dentisterie sociale et préventive), à des fins éducatives et administratives.

Le Conseil remet sa décision concernant les auxiliaires

Le Conseil des Gouverneurs a voté, à Vancouver, le renvoi au comité des services auxiliaires et aux associations membres d'une résolution demandant un rôle plus important pour les auxiliaires dentaires. Cette décision portait sur une résolution réaffirmant (1) la responsabilité du dentiste pour le traitement donné au public et (2) son droit de déléguer les tâches dont l'exécution ne demande pas les connaissances et la compétence professionnelles d'un dentiste. D'après la résolution: ". . . c'est le dentiste . . . qui doit être responsable de la qualité et du niveau du traitement dentaire donné au public et . . ., en assumant cette responsa-

bilité, le dentiste a le droit, sous la surveillance réglementatrice de l'autorité qui décerne les permis d'exercer, de confier aux personnes qu'il contrôle et supervise de façon effective, les tâches dont l'exécution ne demande pas les connaissances et la compétence professionnelles d'un dentiste" La résolution demandait aux conseils provinciaux d'habilitation de mettre ces principes en vigueur. Elle demandait également d'énoncer clairement et sans équivoque la doctrine de la responsabilité finale du dentiste et d'éliminer toute énumération des services que peut rendre légalement le personnel auxiliaire.

Le Conseil prend position sur les résolutions qui lui ont été soumises

L'Alberta Dental Association, la British Columbia Dental Association, la Manitoba Dental Association et le Montreal Dental Club ont soumis plusieurs résolutions importantes. Le Conseil des Gouverneurs:

— a demandé que l'Association dentaire canadienne offre une rémunération convenable au président pendant l'exercice de ses fonctions;

— a renvoyé au sous-comité des congrès (du conseil exécutif) une invitation pour organiser un congrès national en Alberta, après 1973;

— a renvoyé au conseil d'enseignement, pour sa considération, une résolution qui stipule que ce conseil devrait être seul responsable de la sélection et de la fonction des équipes d'enquête pour l'accréditation des facultés dentaires;

— a demandé à l'ADC d'insister auprès du gouvernement fédéral pour qu'il augmente le traitement des étudiants-professeurs;

— a demandé au conseil exécutif d'informer le Gouvernement du Canada du besoin urgent de nouveaux professeurs en dentisterie, pour répondre à la demande de personnel dans tout le pays et a prié les organisations membres de faire la même démarche auprès des gouvernements provinciaux dans le but d'obtenir des fonds publics supplémentaires pour la formation de professeurs;

— a demandé au conseil de la santé publique de reconsidérer la question de



Les membres entrant et sortant du conseil exécutif se sont réunis le 28 juin. On voit sur cette photo (de g. à d.) les Drs J. B. Taylor, London, Ont.; W. J. Spence, Toronto; H. R. Maclean, Edmonton; le président de l'ADC, le Dr Henri Brouillet; le président de l'American Dental Association, le Dr F. D. Ostrander; le président sortant de l'ADC, le Dr W. P. Munsie; le président-élu de l'American Dental Association, le Dr Hubert McGuirl; le secrétaire de l'ADC, le Dr W. G. McIntosh; le Dr W. G. Bruce, Kincardine, Ont.; le Dr Louis Bernier, Québec; et le Dr A. L. MacIsaac, Charlottetown.

la commandite par l'ADC d'une semaine nationale annuelle consacrée à la santé dentaire des enfants;

— a renvoyé au sous-comité sur la taxation (du conseil exécutif) une résolution qui demande que le gouvernement fédéral autorise les dentistes à reporter comme dépenses déductibles de l'impôt sur le revenu, les dépenses découlant de leur présence à plus de deux congrès annuels (cette déduction serait autorisée pendant une période de trois ans après l'année pendant laquelle le congrès a eu lieu);

— a demandé que (1) le conseil exécutif insiste auprès du Gouvernement du Canada pour que les dentistes soient payés sur la même base que les médecins dans le cadre de tout programme de santé, lorsqu'il se peut que l'on autorise le paiement à un médecin pour des services qui peuvent être rendus, avec la même compétence, par un dentiste et (2) que les organisations membres fassent la même démarche auprès des gouvernements provinciaux.

Adoption de nouveaux principes pour le prépaiement

Après des débats prolongés, le Conseil a adopté de "nouveaux principes pour les programmes dentaires prépayés". Ce document offre des directives pour rendre les programmes conformes aux lignes de conduite de l'ADC.

PRINCIPES QUI DEVRAIENT RÉGIR LES PROGRAMMES PRÉPAYÉS

1. Des traitements qui excluraient les soins préventifs de la part du dentiste et du patient seraient voués à l'échec.

2. Un programme qui fournirait des soins généraux devrait améliorer la santé dentaire des bénéficiaires. Ces soins généraux devraient comprendre les traitements spécialisés.

3. Les principes de co-assurance devraient sans doute être appliqués pour la plupart des traitements, sinon leur totalité.

4. Les patients devraient être libres de choisir leur propre dentiste et, réciproquement, les dentistes devraient avoir le droit de choisir leurs patients.

5. Les services couverts par le programme ne devraient être soumis à une autorisation préalable que dans les cas limites.

6. Le traitement devrait, dans la mesure du possible, être assuré par des dentistes privés et tous les dentistes autorisés à pratiquer devraient pouvoir participer au programme.

7. Le paiement devrait être conforme aux tarifs habituels du dentiste ou à un barème établi par l'autorité dentaire provinciale appropriée.

8. Les contrats et la documentation publicitaire devraient indiquer clairement les prestations aux termes du programme, ainsi que les restrictions et les conditions éventuelles qui pourraient être applicables.

9. La réserve monétaire du programme devrait être suffisante pour assurer sa continuité.

10. Les programmes devraient inclure des provisions adéquates pour la solution impartiale de tous les différends. Toutefois, les standards professionnels et la discipline devraient rester la responsabilité de l'autorité qui accorde le droit de pratiquer.

11. La documentation publicitaire devrait; (1) se conformer aux normes déontologiques de la profession; (2) encourager une utilisation maximum du programme de prépaiement; et insister de façon continue et spécifique sur les aspects préventifs des soins dentaires.

12. Des formules et une nomenclature normalisées devraient prévaloir dans tout le domaine des prépaiements.

Le Conseil a approuvé également une formule de réclamation normalisée et a endossé la nomination des présidents des comités des services auxiliaires et dentaires, comme membres ex-officio de leurs comités respectifs.

Proposition d'amalgamer les assurances

Le Conseil des Gouverneurs a accepté, à Vancouver, la proposition d'amalgamer l'assurance vie collective et l'assurance protection du revenu et des frais généraux, commanditées par l'Association dentaire canadienne et l'Ontario Dental Association. Cette recommandation émanait de la réunion conjointe, le 11 juin, des comités consultatifs chargés de l'assurance dans les deux associations.

Le Conseil a accepté l'établissement d'un comité ad hoc ADC-ODA pour surveiller les négociations qui prendront, pense-t-on, plusieurs mois. On a demandé également au comité ad hoc de préparer des recommandations sur la collection des primes d'assurance pour les programmes collectifs amalgamés.

Le Conseil a approuvé aussi la proposition d'établir un comité permanent de sept membres chargé de l'assurance commerciale. L'administration des programmes d'assurance amalgamés sera l'une des responsabilités du comité.

Le Conseil appuie la fluoration

Au cours de son assemblée de 1968, dont le programme était très chargé, le Conseil a également:

- réaffirmé sa position vis-à-vis de la fluoration;

- endossé les règlements régissant les subventions de la Fondation dentaire canadienne pour la recherche aux étudiants gradués et post-gradués qui entreprennent ce genre de travaux;

- demandé au conseil exécutif de considérer la nomination d'un président des débats pour la réunion du Conseil des Gouverneurs (en dehors du président de l'ADC);

- prié les organisations membres d'établir des comités de liaison pour améliorer les communications avec l'ADC;



Le Dr Henri Brouillet, président, avec l'ancien président, le Dr William Miller, qui a dirigé la cérémonie d'installation et le président sortant, le Dr W. P. Munsie.

- approuvé le principe de la réévaluation périodique des services dentaires hospitaliers approuvés précédemment;

- demandé que le conseil, chargé de la constitution et des statuts, considère la possibilité de faire élire un trésorier par le Conseil des Gouverneurs;

- prié les organisations membres d'établir des contacts avec les organisations médicales provinciales équivalentes;

- demandé que le conseil exécutif invite les représentants des organisations membres à un congrès sur les "buts et



Les Drs Brouillet, McIntosh et Munsie forment un joyeux groupe pendant une pause au milieu de l'horaire chargé du congrès.

objectifs" afin de déterminer l'ordre des priorités des services que fournira l'Association dentaire canadienne;

— demandé que le comité des nominations consulte les groupes de spécialités reconnues lorsqu'il propose des membres pour le comité des spécialités et de la spécialisation; et

— approuvé un budget pour 1969 qui estime le revenu à \$297,000, les dépenses à \$330,800 et le déficit à \$33,800.

Le Conseil approuve un emblème pour la dentisterie

Le Conseil des Gouverneurs a approuvé un emblème symbolisant la dentisterie canadienne. Le motif central représente un serpent enroulé autour d'un bâton, entouré des lettres grecques delta et omicron. L'emblème, imprimé en couleur, est sur fond vert, la lettre omicron est or, la lettre delta, noire et le serpent et le bâton sont bordés de noir également. Tout organisme dentaire peut adopter cet emblème et y incorporer sa raison sociale au-dessus ou au-dessous de la lettre omicron.

Événements marquants du congrès de Vancouver

Le programme scientifique de trois jours, du 27 au 29 juin était le plus étendu qui ait jamais été présenté à un congrès national de l'ADC. Il a commencé le mercredi soir, 26 juin, avec un cocktail à la Bayshore Inn.

Jeudi. Le Dr G. D. Stibbs de Seattle, Washington, a inauguré la session du jeudi matin par une communication intitulée "La profession dans son ensemble". Le Dr I. B. Stern, de Seattle également, a décrit la structure du parodontium sain et malade. Le Dr C. A. Sweet de Walnut Creek, Californie a parlé de la thérapeutique de la pulpe en pédodontie. Le Dr T. J. Harrop, Vancouver a traité de "L'enseignement et la recherche" alors que le Dr P. R. Dow, également de Vancouver abordait les nouveaux concepts endodontiques appliqués à l'induction d'une croissance apicale dans les canaux des

racines. Dans une communication intitulée "Amalgame", le Dr Rex Ingram de Los Angeles a mentionné les dernières découvertes sur les alliages d'amalgame fins et microsectionnés. Le Dr S. J. Kloehn d'Appleton, Wisconsin, qui a donné la conférence George Wellington Grieve Memorial, a abordé les nouveaux concepts de l'analyse et du traitement de la malocclusion. Le Dr H. C. Sullivan, de Seattle, a décrit "Le rôle des greffes gingivales libres en thérapeutique périodontique."

Un périodontiste de Seattle, le Dr Saul Schluger a traité du curetage périodontique et des techniques d'entretien, jeudi après-midi. Le Dr Sweet a fait une conférence sur la "pédodontie, hier et aujourd'hui" et le Dr A. J. Haas, orthodontiste à Cuyahoga Falls, Ohio, a décrit l'expansion du palais. Le Dr S. H. Fisher, de Victoria a choisi comme sujet la chirurgie buccale alors que le Dr D. H. Glick de Beverley Hills, Californie passait en revue ses succès et ses échecs avec le traitement endodontique. Le Dr S. C. Robinson, de Portland, Oregon a expliqué comment placer les dents artificielles antérieures pour obtenir les meilleurs résultats possibles du point de vue esthétique et fonctionnel. Le Dr Ingraham, dans une communication intitulée "la dentisterie à quatre mains" a traité de la conception fonctionnelle du cabinet et de l'usage optimum de personnel compétent. Le Dr W. R. Mayne, de Salem, Mass., a conclu le programme de jeudi après-midi par des commentaires sur les extractions orthodontiques en série.

Vendredi. Les Drs E. Bannister et W. M. Joiner, de Vancouver, ont continué, vendredi matin en faisant leurs recommandations aux dentistes d'aujourd'hui pour qu'ils restent en bon état physique. Les principes de compatibilité de l'occlusion ont été décrits par le Dr Ingraham, tandis que le Dr Schluger parlait de la chirurgie périodontique. Les Drs R. E. Jordan et W. R. Teteruk de London, Ont. ont donné une conférence illustrée sur la dentisterie restauratrice. Le Dr Kloehn décrivant l'analyse et le traitement de la malocclusion de la classe II, a fait des commentaires sur l'application des instruments cervicaux pour le traitement de la

dentition mixte. Le Dr Stibbs, dans une communication intitulée "la dentisterie au service des adolescents" a décrit "Les techniques et les matériaux pour le maintien de la santé buccale et la conservation de la structure dentaire pendant une période très cariogène". Les dentistes de Vancouver, les Drs Neil Basaraba, G. A. Drennan et G. R. Thorardson ont présenté des rapports de cas périodontiques alors que le Dr F. J. Musaph décrivait les désordres de l'articulation temporo-maxillaire. Le Dr A. H. L. Campbell, également de Vancouver a terminé la session du matin avec une description des préparations et modèles des couronnes trois quarts.

Le Dr C. R. Castaldi de Winnipeg, a commencé la session du vendredi après-midi avec une deuxième communication sur la dentisterie pour les adolescents. En même temps, la British Columbia Dental Services Association dirigeait une discussion sur les programmes dentaires prépayés. La technique de l'amalgame a été le sujet d'une communication traitée par F. L. Jacobson and Associates de Seattle. Ils ont décrit la procédure de la digue, la préparation de la cavité, l'application de la matrice, la manipulation et l'insertion du matériau d'obturation, le finissage de la restauration et les techniques de pose de crampons. George Ellsperman de Bellingham, Washington, a parlé de la restauration d'une seule dent. Le Dr Mayne a conclu ses remarques précédentes sur l'extraction orthodontique en série, alors que le Dr Ingraham terminait aussi sa communication sur l'occlusion. Le Dr Jean T. Hodson de Seattle a tenu une place impor-

tante dans le programme en parlant des propriétés de la manipulation et de la condensation de l'or de restauration, tandis que le Dr Schluger décrivait le traitement du sac périodontique. Le Dr Haas a parlé du traitement orthodontique des cas limites pendant la période de dentition mixte.

Le symposium du vendredi après-midi a prêté une attention toute particulière au programme de santé dentaire pour les enfants, de l'ADC. Le groupe de discussion se composait du président, le Dr W. P. Munsie, du président élu, le Dr Henri Brouillet et du Dr W. J. Spence.

Samedi. Le Dr Jacobson et ses associés ont présenté à nouveau leur communication sur la technique de l'amalgame, samedi matin. Le Dr Stibbs a continué en traitant des propriétés et des techniques d'aurification. Le dermatologue Ferdinando Serri de Pavie, Italie a décrit les changements de la muqueuse buccale par suite de certaines maladies de la peau tandis que le Dr J. D. Spouge, Vancouver, traitait de la pathologie buccale. Le programme scientifique s'est terminé par une discussion sur l'occlusion.

Envénements sociaux. Le côté social du congrès a compris trois déjeuners officiels, deux dîners et un bal. Le déjeuner officiel de l'ADC s'est tenu le jeudi. C'est le gouvernement de la Colombie britannique qui offrait le déjeuner de vendredi. La fiesta du Président et un bal ont mis le point final au congrès, le samedi soir.

Comment pourrez-vous faire face aux frais fixes de votre cabinet, si vous tombez malade ou si vous subissez un accident? Evidemment grâce à une assurance qui couvre les frais fixes du cabinet. Plus de 2,000 dentistes font partie d'un plan d'assurance qui couvre ces frais fixes de cabinet et qui est patronisé par l'Association dentaire canadienne. Si vous désirez vous protéger contre ce risque, écrivez dès maintenant aux Plans d'assurance et de retraite de l'ADC, 2249 rue Yonge, Toronto 7, Ontario.

L'Association

Distribution du nouveau mini-film de l'ADC pour la télévision

Un nouveau mini-film, de 60 secondes, sonore et en couleur, produit pour l'Association dentaire canadienne sera distribué, le 15 août, en versions anglaise et française aux postes canadiens de télévision. Intitulé "le lion et la souris", il met en scène le roi de la jungle pris au piège dans une corde et incapable de se libérer, à cause de ses mauvaises dents. La souris qui prend soin des siennes et surveille son régime alimentaire, vient à son secours. On a demandé aux postes de commencer à projeter ce mini-film dès la rentrée des classes.

Canada

Formation d'un comité d'auxiliaires dentaires

Le Ministre fédéral de la Santé et du Bien-être, M. A. J. MacEachen a annoncé la formation d'un comité ad hoc pour étudier le rôle des auxiliaires dentaires, sous tous ses aspects. Ce comité a été formé sur la recommandation du comité consultatif dentaire auprès du Ministre de la santé, avec la coopération de l'Association dentaire canadienne. Sa création est le résultat d'une proposition de l'ADC demandant un comité d'enquête indépendant sur les services dentaires auxiliaires (*Délibérations* 1965, p. 74). Cette recommandation représentait une contre-proposition à celle de la Commission Hall qui

demandait l'établissement d'un comité consultatif nommé par le Ministère fédéral de la Santé et du Bien-être, pour étudier la formation des auxiliaires dentaires.

Le comité ad hoc, dirigé par le juge Dalton C. Wells, de la Cour Suprême de l'Ontario, étudiera le rôle des auxiliaires dentaires, sous tous ses aspects, et particulièrement leur contribution éventuelle à l'amélioration de la santé dentaire de tous les canadiens.

Pour représenter la pratique privée, l'ADC a nommé membres du comité, les Drs J. F. Reid, de Vancouver Nord, C.B.; M. A. Kamienski, de Scarborough, Ont.; J. G. Bélanger, de Montréal et C. E. Dexter de Halifax.

Les autres membres sont:

le Dr C. W. B. McPhail, doyen adjoint de la Faculté dentaire de l'Université de Saskatchewan, nommé par l'Association des facultés dentaires canadiennes et

le Dr M. A. Hunt, directeur du Département de l'enseignement dentaire post-gradué à la Faculté dentaire de l'Université de Toronto, nommé par la Société canadienne des dentistes de santé publique.

Le juge Wells a nommé membre du comité, M. Cleve Kidd, de Montréal, vice-président exécutif de l'Association des pilotes de ligne canadiens, qui représente les consommateurs canadiens.

Les autres membres sont:

le Dr J. D. W. Cameron, de Peterborough, Ont., ancien ministre adjoint de la santé au Ministère fédéral de la Santé et du Bien-être, actuellement président du Victorian Order of Nurses, qui représente le secteur de la santé publique et

Mme Marjorie Jackson, directrice du Département de l'hygiène dentaire à l'Université de Toronto, qui représente les auxiliaires dentaires.

Les membres ex officio du comité sont les Drs J. N. Crawford, sous-ministre fédéral de la santé et R. A. Connor, chef des Services de la santé dentaire au Ministère fédéral de la Santé et du Bien-être.

Le FCED offre des bourses d'une valeur de \$32,585

Le Fonds canadien pour l'enseignement dentaire a offert un total de \$32,585 sous la forme de 19 bourses destinées à la formation des enseignants et à la recherche. L'aide du FCED a pu s'accroître dans ces proportions considérables parce que les dons qu'il a reçus représentent une augmentation de 25 pour cent sur 1967, a déclaré son président, le Dr J. D. McLean de Halifax. Les bourses de 1968 qui comprennent des donations pour la recherche, administrées précédemment par le Conseil de la recherche de l'ADC ont été octroyées aux dentistes québécois suivants:

J. D. Ambrozaitis, de Montréal, qui commence sa troisième année d'études en bactériologie à l'Université du Wisconsin,

A. Bowman, de Montréal, qui commence sa première année d'études en prosthodontie, (couronnes et ponts) à l'Université de l'Indiana.

S. M. Kennedy, de Westmount, qui commence sa première année d'études en prosthodontie à l'Université de Boston.

P. P. Lamontagne, de Montréal, qui commence sa première année d'études en dentisterie opératoire à l'Université du Michigan.

La bourse de 1967-68 de **S. S. Miller**, de Montréal, qui étudie l'orthodontie à l'Université de l'Oregon a été renouvelée pour une autre année.

Depuis 1964, le FCED a donné \$59,035 sous forme de bourses, dont 65 pour cent de ces allocations totales à 27 dentistes qui entraient dans l'enseignement.

Le FCED donne \$6,750 aux facultés dentaires canadiennes

Les neuf facultés dentaires canadiennes ont reçu chacune un don discrétionnaire

de \$750, a déclaré M. C. E. Peirce, vice-président du Fonds canadien pour l'enseignement dentaire et président de Ash Temple Limited, Toronto. Cet argent sert à satisfaire aux besoins éducatifs qui ne sont pas couverts par les budgets des facultés. Depuis 1965, le FCED a donné \$23,250 aux facultés dentaires, sous forme de dons auxquels n'est attachée aucune condition.

Le Fonds pour l'enseignement donne \$4,000 à l'Association des facultés

Le Dr H. W. Reid, administrateur du Fonds canadien pour l'enseignement dentaire et ancien président de l'ADC a annoncé le don de \$4,000 à l'Association des facultés dentaires canadiennes. Une partie de cet argent servira aux séances scientifiques de la première réunion générale annuelle de l'AFDC à London, Ont., en octobre prochain. Le FCED a donné un total de \$9,000 à l'AFDC depuis la création de cette dernière, en 1966.

Les congrès-croisières ne peuvent plus être déduits de l'impôt

Les dentistes ne pourront plus déduire de leur impôt sur le revenu le coût des congrès commandités par l'Association dentaire canadienne en dehors du Canada. Les congrès plus particulièrement visés par cette décision sont ceux qui se tenaient pendant une croisière, comme l'indiquent les directives suivantes publiées par le Ministère du revenu national.

"C'est l'opinion du ministère que, généralement, les raisons d'être d'un congrès commandité par une organisation canadienne, commerciale ou professionnelle, ne demandent pas qu'il se tienne hors du Canada, lorsque le caractère de l'organisation est national ou en dehors d'une province donnée, municipalité ou autre circonscription au Canada, lorsque les activités de l'association sont limitées à cette région. En conséquence, les dépenses relatives à un congrès commandité par une organisation canadienne qui se tient en dehors de ces limites géographiques ne seront pas considérées, normalement, comme pouvant être déduites du revenu. Dans ce contexte, un congrès qui a lieu à l'occasion

d'une croisière sera considéré comme organisé hors du Canada."

L'ADC honore les gagnants d'expo-sciences

Judy Blasco, élève de 13^e année à Lindsay, Ont., et John Janis qui a 16 ans et est en 11^e année à Perth, Ont., ont gagné les deux prix de l'Association dentaire canadienne décernés à la septième expo-sciences nationale canadienne, qui s'est tenue à l'Université de la Colombie britannique, à Vancouver, du 9 au 11 mai.

L'Association dentaire canadienne est l'un des commanditaires de la Fondation scientifique pour la jeunesse qui encourage les activités scientifiques hors-programme et organise la foire annuelle.

C'est le Dr G.F. Copithorne de Vancouver Nord qui a fait la sélection, cette année, au nom de l'ADC.

Le Dr Lucas prendra la parole au symposium international sur l'hémophilie

Le Dr O.N. Lucas de la Faculté dentaire de l'Université de l'Alberta participera à un symposium international au cours du cinquième congrès de la Fédération mondiale sur l'hémophilie, qui se tiendra à Montréal. La réunion aura lieu du 23 au 28 août, dans l'immeuble de l'Organisation de l'Aviation civile internationale, qui se trouve au centre de la ville.

Le Dr Lucas prendra la parole le 26 août au cours d'une discussion de groupe sur "la thérapeutique non spécifique de l'hémophilie". Le Journal a publié plusieurs articles du Dr Lucas sur le traitement dentaire des hémophiles.

Organismes dentaires

Réunion des chirurgiens buccaux à New York

La Société canadienne des chirurgiens buccaux tiendra sa réunion annuelle le dimanche 6 octobre à l'hôtel Americana

de New York. La réunion coïncide délibérément avec celles de l'American Society of Oral Surgeons et de l'International Society of Oral Surgeons. Pour de plus amples informations, communiquer avec le Dr M. Gornitsky, 6000 chemin de la Côte des Neiges, Montréal, Qué.

Nouveau comité pour étudier la dentisterie organisée au Québec

Le Collège des chirurgiens-dentistes de la province de Québec et l'Association dentaire de la Province de Québec ont formé un comité de liaison conjoint pour étudier l'organisation de la profession dentaire au Québec. Cette mesure a reçu l'approbation du Conseil des Gouverneurs du CCDPQ au cours de sa réunion à Québec, le 19 avril. Elle fait suite à une proposition d'amalgamation entre l'ADPQ et l'Association professionnelle des chirurgiens-dentistes de la province de Québec.

On a demandé au comité de liaison de rédiger les statuts d'une nouvelle association qui représenterait tous les dentistes du Québec. Il fera également des propositions pour la modification de la loi et des règlements régissant le Collège.

Ont été nommés représentants du CCDPQ, les Drs Marcel Archambault, Montréal; C.E. Gosselin, Sherbrooke; D. H. Muhlstock et G.M. Dundass, tous les deux de Montréal. Les Drs Jacques Fiset, Montréal; Jacques Dufour, Québec, Jean-Claude Durand et Hubert Labelle l'un et l'autre de Montréal, représentaient l'ADPQ.

Réunions des dirigeants des associations dentaires de l'Ontario et du Québec

Les dirigeants du Collège des chirurgiens-dentistes de la province de Québec ont rencontré, en avril, les représentants du Royal College of Surgeons of Ontario pour discuter de leurs problèmes communs. Cette réunion, qui s'est tenue à Toronto, a porté sur la discipline, la pratique illégale, l'inspection des cabinets dentaires, les examens d'habilitation, le Conseil national d'examen dentaire du

Canada, les mécaniciens dentistes, l'enseignement continu, les lois régissant les hôpitaux, l'internat dentaire, les auxiliaires dentaires, les spécialités et l'organisation de l'Ontario Dental Association.

Les participants du Québec étaient les Drs Lorenzo Picard, président du CCDPQ; Marcel Archambault, premier vice-président du CCDPQ et R. M. Le Blanc, secrétaire général du CCDPQ. Les Drs J. D. Purves, président du RCDS; W. J. Spence, président de l'ODA ainsi que K. F. Pownall, secrétaire général du RCDS et secrétaire de l'ODA, représentaient l'Ontario.

La Société dentaire de Montréal élit le Dr Labelle

Le Dr Hubert Labelle vient d'être élu récemment président de la Société dentaire de Montréal. Il remplace le Dr Gérard Lussier.

Les autres membres du Conseil de direction sont les Drs Jacques Matteau, président-élu; Guy La Haye, vice-président; Léon Daigle, secrétaire et René Bourcier, trésorier.

Facultés dentaires canadiennes

Nouveau programme conduisant à la maîtrise ès-sciences à l'Université de Montréal

La Faculté de chirurgie dentaire de l'Université de Montréal vient de créer une nouvelle "Maîtrise ès-sciences". Le programme conduisant à la maîtrise ès-sciences (option biologie dentaire) est offert aux diplômés en chirurgie dentaire ou aux médecins qui se destinent particulièrement à une carrière d'enseignement et de recherches dans les disciplines biomédicales appliquées à l'odonto-stomatologie.

La biologie dentaire devient un territoire d'études multidisciplinaires où se groupent des connaissances qui servent à résoudre les problèmes posés par les anomalies et maladies buccales.

Le programme qui débutera en 1968-69 sera offert, pour le moment dans la majeure de pathologie dentaire sous la direction du docteur Z. Mézl, directeur du département de Biologie dentaire.

Pour tout renseignement, prière de s'adresser à la Faculté de chirurgie dentaire, Université de Montréal, C.P. 6128, Montréal 3, Qué.

Nomination du Dr Gardner, professeur à UWO, au bureau d'étude des tumeurs

Le Dr D. G. Gardner, professeur associé de pathologie à la Faculté dentaire de l'Université de Western Ontario, London, a été nommé récemment membre de l'un des groupes d'experts du bureau d'étude des tumeurs de l'Institut national du Canada contre le cancer. Les pathologistes soumettent les problèmes de diagnostic au bureau d'étude des tumeurs pour qu'il prépare des diapositives et les envoie aux membres du groupe d'experts appropriés qui donneront leur opinion.

Le groupe dont le Dr Gardner fait partie s'occupe des tumeurs de la cavité buccale, du pharynx, des glandes salivaires et du système respiratoire, y compris la pleura et le mediastin. Il semble que le Dr Gardner soit le premier spécialiste en pathologie buccale qui fasse partie du bureau d'étude des tumeurs.

Fluoration

Six millions de canadiens bénéficient de la fluoration

L'Association dentaire canadienne annonce qu'au Canada, à la fin de 1967, 6,063,000 personnes résidaient dans 313 localités qui contrôlaient la teneur en fluor de l'eau. En outre, 197,000 personnes vivaient dans des localités dont l'eau était fluorée naturellement, ce qui portait à 6,260,000 le nombre total de personnes bénéficiant de la fluoration. Ce chiffre représente 30 pour cent de la population totale ou 43 pour cent de la population alimentée en eau potable, par des aqueducs.

Aux Etats-Unis, pour la même année, le nombre des bénéficiaires se montait à 81,925,000.

Les étudiants de Montréal appuient la fluoration

Les étudiants de l'Université McGill et de l'Université de Montréal ont formé un comité interuniversitaire pour promouvoir la fluoration de l'eau de la ville de Montréal. Ce groupe cherchera à établir des relations étroites avec le conseil exécutif de la ville, en vue de poursuivre cet objectif. M. R. S. Bell, 8016 George Avenue, Lasalle, Qué. est le porte-parole du comité.

La fluoration gagne du terrain au Connecticut et en Australie

Près de 75 pour cent de la population urbaine de l'Etat consomme maintenant de l'eau fluorée, a déclaré le Ministère de la Santé de l'Etat de Connecticut. De plus, les autres services publics dont l'eau n'est pas fluorée sont en train de faire les installations nécessaires ou, dans un cas, d'étudier le genre d'équipement à installer.

En Australie, Sydney a commencé récemment à fluorer son eau, à la suite de nombreuses années d'efforts de la part de la société dentaire locale.

Promotion de la fluoration en URSS

L'agence de presse Novosti rapporte que l'Union Soviétique a décidé de fournir à ses citoyens de l'eau potable contenant 1.5 ppm (1 mg.-litre) de fluorure. Les nouvelles normes fixent la teneur en fluorure à un minimum de 0.5 ppm.

A Norilsk, où l'eau est fluorée depuis huit ans, l'incidence des caries a diminué de près de 50 pour cent. L'eau de Moscou, qui provient de sources multiples avec des concentrations de fluorure différentes est mélangée pour assurer la teneur voulue en fluorure.

Economie

Le plan de soins dentaires prépayés de l'Alberta

Les habitants de l'Alberta peuvent maintenant adhérer à un programme de soins dentaires prépayés, qui couvrent environ 70 pour cent des frais relatifs aux soins dentaires. Ce programme, commandité par l'Alberta Dental Service Corporation, sera offert à des groupes organisés, des firmes commerciales, des associations d'employés ou des syndicats, dans la mesure où 75 pour cent des employés éligibles y participent.

Ce plan est un genre de co-assurance indemnité. Le syndicat ou l'employeur doit payer un minimum de 50 pour cent de la prime. Le programme couvre généralement un maximum de 70 pour cent des frais dentaires. Les services autorisés comprennent: les examens en vue du diagnostic, les examens radiographiques, les applications localisées d'agents anticariogènes, les obturations, les extractions et le traitement périodontique. Les couronnes et les bridges, les prothèses et autres soins facultatifs ou cosmétiques seront couverts à environ 50 pour cent. Le traitement orthodontique n'est pas inclus à l'heure actuelle.

Ce programme offre des gratifications lorsque le patient a reçu, au cours de l'année, tous les soins nécessaires. Dans ce cas, l'escompte est de 10 pour cent des prestations, la deuxième année. Au cours de la troisième année, il atteint son maximum de 20 pour cent. Si le patient n'a pas rendu visite à son dentiste au cours de l'année et n'a pas reçu les soins dont il avait besoin, son escompte est réduit de 10 pour cent par an jusqu'au niveau initial des prestations.

Des bourses aident à remédier au manque de dentistes en Saskatchewan

Le programme adopté par le gouvernement de la Saskatchewan, pour remédier au manque de dentistes, donne de bons résultats d'après M. J. J. Clarkson, sous-ministre provincial de la santé publique. A la suite du système de bourses établi

par le gouvernement, 10 à 15 nouveaux dentistes viendront s'établir en Saskatchewan, cette année.

La province aide financièrement les étudiants qui s'engagent à revenir en Saskatchewan, pour y exercer leur profession. Quatre-vingts étudiants reçoivent maintenant des bourses et huit autres suivent des cours post-gradués. Le gouvernement offre aussi jusqu'à \$5,000 aux dentistes qui veulent établir des cabinets dans des régions où l'on a particulièrement besoin d'eux. S'ils y restent un minimum de cinq ans, ils ont droit à la remise de leur dette. Jusqu'à présent trois dentistes ont bénéficié de ces subside.

Les salaires gelés en Grande-Bretagne

Les médecins et les dentistes britanniques ont critiqué une décision du gouvernement annonçant la suppression des augmentations de salaire annuelles des membres du Service national de santé. Ils recevront une allocation de base et des allocations supplémentaires plus élevées mais non les augmentations de salaire anticipées. Le revenu moyen d'un dentiste est de \$9,030.

Augmentation de l'assurance dentaire aux Etats-Unis

L'essor récent de l'assurance dentaire, qui couvre maintenant le nombre record de quatre millions de personnes, a été phénoménal. C'est ce qu'a déclaré récemment aux délégués de la conférence sur l'assurance de l'American Dental Association, le directeur des services d'information et de recherche de l'Health Insurance Association of America, M. J. F. Follman au cours de sa conférence qui traitait de l'assurance dentaire depuis 1963.

D'après M. Follman, les compagnies d'assurance protègent maintenant 1.7 million de personnes. Les prestations payées aux termes de ces polices dentaires ont dépassé \$32 millions en 1966. Le nombre des compagnies d'assurance qui les offrent est passé de 26 en 1963 à 36 en 1968. Tou-

jours d'après M. Follman, ce sont les corporations de service dentaire et les programmes syndicaux qui, après les compagnies d'assurance fournissent le plus d'assurance dentaire.

Recherche

NYU se lance dans la recherche périodontique

La faculté dentaire de l'Université de New York a accepté un subside de \$176,262 de la fondation Hartford, pour entreprendre des études approfondies des causes des maladies périodontiques et pour chercher les moyens d'y remédier. Le subside permettra aux microbiologistes de NYU de déterminer si la maladie est causée par une interaction destructive de différents streptocoques et de leurs sous-produits. Il est possible que les sous-produits, qui sont des genres de sucre, la dextrane et la levane, jouent un rôle majeur dans le développement et la progression de la maladie. L'un et l'autre semblent protéger les bactéries, les faire adhérer aux dents et leur faciliter l'attaque des tissus de support. Ils semblent aussi créer des espaces entre la gencive et les dents, ce qui permet l'établissement de sacs périodontiques; il est possible qu'ils empirent encore les choses en produisant un acide qui semble aider la désintégration de la structure minérale de la dent.

Des études plus approfondies indiqueront peut-être que la carie dentaire et la maladie périodontique sont les symptômes d'une même maladie. Si c'est le cas, on pourrait envisager le traitement et éventuellement la prévention de la plupart des désordres dentaires en enlevant ou en neutralisant les sous-produits bactériens qui aident les bactéries à adhérer aux dents et à les attaquer.

La dextranase, un enzyme qui détruit la dextrane, offre des possibilités pour la prophylaxie de la carie dentaire. Les scientifiques de NYU feront des études avec cet agent, qui est l'une des armes possibles contre les maladies périodontiques. Ils expliquent que les molécules en chaînes ramifiées de la dextrane s'entre-

lacent et forment une plaque tenace sur les dents. Cette plaque, disent-ils, s'étend et sépare les dents de la gencive, ouvrent la voie aux organismes, ce qui leur permet d'atteindre et d'attaquer les dents et les tissus sous-gingivaux adjacents. La combinaison de la plaque et des organismes détruit les fibres périodontiques et déchausse la dent. Les streptocoques produisent de la levane, produisant ainsi un acide qui contribue vraisemblablement à cette action destructive.

Les scientifiques analyseront les dents atteintes pour vérifier la présence de dextrane et d'organismes producteurs de dextrane le long de la ligne de l'attaque périodontique. Ils vérifieront également la présence d'acidité dans les sacs périodontiques, ce qui indique l'existence de levane.

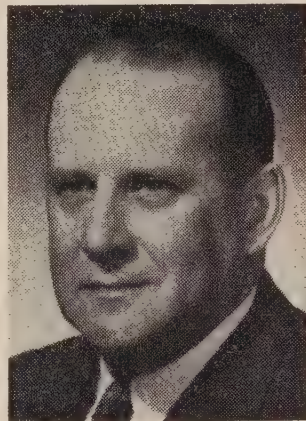
Des animaux de laboratoires recevront des injections d'organismes producteurs de dextrane, prélevés dans la bouche des malades; on s'attend à ce qu'ils contractent la maladie alors que les animaux de contrôle non infectés n'en seraient pas atteints.

Ces expériences peuvent prouver la relation existant chez les humains entre les streptocoques et la maladie périodontique mais elles n'incrimineront pas nécessairement la dextrane et la levane. Pour cela, les chercheurs devront étudier le rôle de la dextrane et de la levane, en les supprimant, en bloquant leur action et en les contrôlant par divers moyens chimiques et mécaniques. Des expé-

riences concernant différentes techniques de nettoyage des dents, en employant de la dextranase, des fluorures, des antibiotiques et autres agents pourront fournir des armes efficaces pour le traitement ou la prévention de la maladie périodontique.

Les scientifiques de NYU essaieront aussi d'inoculer des animaux de laboratoires avec de la dextrane et de la levane pour voir s'il est possible de produire des anticorps qui donnent une protection naturelle contre l'infection périodontique.

Distinctions honorifiques



Le Dr Gustave Ratté

La médaille canadienne du Centenaire conférée pour "services rendus à la patrie" vient d'être décernée à l'ancien président de l'ADC, le Dr **Gustave Ratté** de Québec.

Profitez du plan d'épargne-retraite de l'Association dentaire canadienne pour parer à l'inflation et pour vous créer un fonds garanti de pension. Vos cotisations, déductibles de l'impôt, peuvent, à votre choix, acheter des débentures du gouvernement, des débentures de corporations ou des parts communes. Vous pouvez, à l'âge de votre retraite, convertir vos placements en des rentes de votre choix. Si vous désirez d'autres renseignements, les Plans d'assurance et de retraite de l'ADC, 2249 rue Yonge, Toronto 7, Ontario, seront heureux de vous les fournir.

dentistry in the news

The Association

1969 Aptitude Test Brochures Available

The Canadian Dental Association has published new brochures in English and French giving details of the 1969 CDA Dental Aptitude Test Program for applicants to first year dental classes at Canadian dental schools. The brochures give information about predental requirements, the professional course of study, the DAT program, test dates (January 10 or 11 and March 28 or 29, 1969), application procedure, test centres, test reports, and fees. The program is supervised by the CDA Council on Education.

Dental aptitude tests which are required or recommended by every Canadian dental school help to predict an applicant's probable success in the dental curriculum. Test results are considered with all other pertinent information in determining the applicant's admission to a dental school. Copies of the DAT brochures may be obtained by writing to Dental Aptitude Test Program, Canadian Dental Association, 234 St. George St., Toronto 5, Ont.

Canada and the Provinces

International College Inducts New Fellows

Fifteen new fellows were inducted at a convocation of the Canadian Section, International College of Dentists, held in Vancouver June 26. The new fellows are:

S. Wah Leung, E. E. Martin, D. H. Munro, Max Nacht and W. R. Upton, all of Vancouver; L. E. English, Kamloops, BC; Alec Gunning, Victoria; R. V. Blackmore and G. E. Decker, Edmonton; K. F. Pownall, C. E. Purdy and R. L. Twible, all of Toronto; R. E. Jordan, London; D. B. Ward, Montreal; and Paul Dionne, Joliette, Que.

J. A. Fortier, Montreal, was elected president of the ICD Canadian Section. He replaces T. H. Johns, Victoria. W. J. Riley, Winnipeg, was named president-elect and Murray Purcell, Pembroke, Ont., was elected vice-president. H. R. Skilling was named treasurer and E. A. White was named registrar. Both are from Toronto.

Elected as regents were G. R. Hallman, Vancouver, District 1; R. D. Haryett, Edmonton, District 2; J. P. Whyte, Swift Current, Sask., District 3; G. A. Brass, Winnipeg, District 4; J. A. Sherman, Toronto, District 5; C. A. E. McCabe, Ottawa, deputy regent for District 5; W. J. Johnston, Montreal, District 6; Conrad Godin, Trois-Rivières, Que., deputy regent for District 6; and G. M. Dewis, Halifax, District 7. Brig. E. M. Wansbrough, Ottawa, was elected editor.

Cruise Conventions Not Tax Deductible

Dentists will no longer be able to claim an income tax deduction if they attend a convention sponsored by a Canadian dental organization outside Canada. The ruling hits conventions held during an ocean cruise, as shown by the following directive from the Department of National Revenue:

"It is the opinion of the Department that, ordinarily, the business purpose of a convention sponsored by a Canadian business or professional organization does not require that it be held outside Canada, where the organization is national in character, or outside a particular province, municipality or other area in Canada where the activities of the organization are limited in scope to such area. Consequently, expenses incurred in attending a convention sponsored by a Canadian organization that is held outside those geographical limits will normally be viewed as not deductible in computing income. For this purpose, a convention held during an

ocean cruise will be viewed as being held outside Canada."

CFDE Awards \$32,585 in Fellowships

The Canadian Fund for Dental Education has awarded a total of \$32,585 for 19 teacher training and research fellowships. This substantial increase in aid largely results from a 25 per cent upsurge in 1967 donations, said CFDE's chairman, J. D. McLean, of Halifax. The 1968 awards, which include research fellowships formerly administered by the CDA Council on Research, went to:

J. D. Ambrozaitis, Montreal, entering third year in bacteriology at the University of Wisconsin;

A. Bowman, Montreal, entering first year in crown and bridge prosthodontics at Indiana University;

D. V. Chaytor, Halifax, completing the final year in prosthodontics at Ohio State University;

J. E. Eisner, Edmonton, entering first year in educational methodology applied to dentistry at the University of Michigan;

E. Freeman, Toronto, entering second year in periodontics at the University of Toronto;

E. J. Hannigan, Armdale, Nova Scotia, entering first year in periodontics at Boston University;

E. Hisaki, Toronto, entering first year in anatomy related to dentistry at the University of Toronto;

S. M. Kennedy, Westmount, Que., entering first year in prosthodontics at Boston University;

P. P. Lamontagne, Montreal, entering first year in restorative dentistry at the University of Michigan;

W. B. Love, Winnipeg, completing the final year in prosthodontics at Ohio State University;

M. D. Peikoff, Winnipeg, entering second year in endodontics at Boston University;

G. Z. Wright, Winnipeg, entering first year in paedodontics at Indiana University;

G. P. Wysocki, Edmonton, entering first year in pathology at the University of North Carolina; and

I. I. Zamikoff, Toronto, entering first year in prosthodontics at the University of Michigan.

Five 1967-68 fellowships were renewed for a further year:

A. H. Ervin, Dartmouth, Nova Scotia, studying prosthodontics at Ohio State University;

M. D. Jones, Edmonton, studying crown and bridge prosthodontics at Indiana University;

S. S. Miller, Montreal, studying orthodontics at the University of Oregon;

J. P. Sapp, Halifax, studying oral pathology at the University of Michigan; and

K. H. Wright, Toronto, studying periodontics at the University of Toronto.

Since 1964 CFDE has awarded \$59,035 in fellowships, 65 per cent of its total allocations, to 27 dentists to enter teaching careers.

CFDE's Advisory Committee on Fellowship Selection reviewed 24 applications for 1968-69 awards. Serving on the committee were J. W. Neilson, dean, Faculty of Dentistry, University of Manitoba; W. G. Campbell, Faculty of Dentistry, University of Manitoba; W. H. Feasby, Faculty of Dentistry, University of Western Ontario; and M. C. Johnston, Faculty of Dentistry, University of Toronto.

Education Fund Awards \$4,000 to Faculties Association

H. W. Reid, trustee of the Canadian Fund for Dental Education and a former CDA president, has announced the award of \$4,000 to the Association of Canadian Faculties of Dentistry. Part of the money will aid scientific sessions of the first annual general meeting of ACFD in London, Ont., next October. CFDE has awarded a total of \$9,000 to ACFD since the latter's formation in 1966.

CFDE Awards \$6,750 to Canadian Dental Schools

All nine Canadian dental schools have been awarded \$750 unrestricted grants according to C. E. Peirce, vice-chairman of the Canadian Fund for Dental Educa-

tion and president of Ash Temple Limited, Toronto. The money is used for educational needs not provided for in faculty budgets. Since 1965 CFDE has awarded \$23,250 in unrestricted grants to dental schools.

Dr. Lucas to Speak at International Haemophilia Panel

O. N. Lucas of the Faculty of Dentistry, University of Alberta, will be a participant at an international symposium during the Fifth Congress of the World Federation of Haemophilia in Montreal. The meeting will be held at the International Civil Aviation Organization Building in downtown Montreal August 23-28.

Dr. Lucas will speak August 26 during a panel discussion on "non-specific therapy of haemophilia." The Journal has published several of Dr. Lucas' articles pertaining to dental treatment in haemophiliacs.

International Items

Dr. Grainger Appointed to Washington Post

Canada's R. M. Grainger has been appointed associate director for extramural programs at the US National Institute of Dental Research. He will administer NIDR's grant support for research and graduate research training in more than 100 universities and other institutions.

Before coming to NIDR July 1, Dr. Grainger was at the University of British Columbia, Vancouver, where he headed the dental clinic, taught and conducted research in epidemiology and computer applications. From 1958 to 1967 he was professor of epidemiology and chairman of the Division of Dental Research, University of Toronto.

Dr. Grainger has been active in dental affairs internationally. In Canada he has served governments and dental organizations. He helped to develop a methodology for gathering dental health statistics and maintaining a national dental health

index. His international work includes serving as chairman of a committee on design and analysis of clinical trials and heading a World Health Organization panel that is developing a system of dental epidemiology.

Dr. Grainger received his DDS from the University of Toronto in 1943. In addition, he holds a diploma in dental public health and an MScD in epidemiology from the same university.

Internships, Residency Offered by New York Hospital

Brookdale Hospital Centre, Brooklyn, NY, offers two rotating internships and one residency in general practice during 1969-70. The beginning date is July 1, 1969. The internships are available to graduates of New York State approved dental schools who are eligible to take examinations of the New York State Board of Dental Examiners. Annual stipends for the internships are \$5,500 and for the residency \$6,000. The stipends include uniforms and meals.

Two additional two year residencies in paedodontics are also available. Stipend for the first year is \$6,000 and for the second year \$6,500 (again including uniforms and meals).

For further information and applications please write to A. Norman Cranin, director of dental services, Brookdale Hospital Centre, Linden Boulevard at Brookdale Plaza, Brooklyn, NY 11212, USA.

Two Canadians at Chicago Oral Cancer Conference

Two Canadian dentists were present at a recent oral cancer conference in Chicago. The meeting, held June 5, dealt with oral care for patients receiving treatment for oral cancer. The Canadian participants were K. C. Bentley, chairman, Department of Oral Surgery, McGill University, Montreal, and F. W. Lovely, head, Division of Oral Surgery, Dalhousie University, Halifax.

The conference had several committees of dentists, surgeons and radiation ther-

apists who discussed the management of teeth, bone, soft tissue and prostheses for patients before, during and after treatment for oral cancer.

25th Oral Biology Meeting in Palm Springs, Oct. 11-15

The American Institute of Oral Biology will hold its silver anniversary meeting October 11-15 at the Oasis Hotel, Palm Springs, California. The faculty will comprise:

Robert Frank of the Institut Dentaire de Strasbourg, France, who will discuss electron microscopy of amelogenesis and dentinogenesis, ultrastructure of incipient caries and plaque, and dentinal sclerosis and ultrastructural basis of dentinal sensitivity;

E. S. Gordon, Department of Medicine, University of Wisconsin, whose topics will be human ecology — its importance in health and disease, the interrelated functions of insulin and growth hormone, and metabolic derangements induced by alcohol;

R. O. Greep, Harvard Medical School, Boston, who will discuss the biological basis of population growth and fertility control and newer advances in endocrinology;

Neil Jenkins, Sutherland Dental School, Newcastle-upon-Tyne, England, who will speak on composition and formation of dental plaque, the physiology of speech, and recent work on the sensation of taste; and

Hans Selye, Institute of Medicine and Experimental Surgery, Université de Montréal, who will lecture on stress and dentistry, recent advances in calciphyllaxis and calcergy, and the mechanism of inflammation and antiphlogistic therapy.

Further information and application forms may be obtained from J. A. Ducasse, 240 E. Lake Ave., Watsonville, California 95076, USA.

Spanish Dental Congress Set for April 1969

Canadian dentists have been invited to attend the 21st national and international

dental congress of the Spanish Dental Association in Madrid, April 7-12, 1969. "Progress in Prosthetic Dentistry" has been designated as the theme of the congress. Further information may be obtained from A. J. Cervera, Colegio de Odontólogos, Fernanflor 4, Madrid 14, Spain.

New Zealand Dental Nurses in Australia

South Australia will graduate its first group of school dental nurses in March 1969, thus becoming the second state in Australia to produce dental auxiliaries based on the New Zealand pattern. Sixteen student dental nurses are being trained in Adelaide.

Dental Organizations

Oral Surgeons to Meet in New York

The Canadian Society of Oral Surgeons will hold its annual meeting on Sunday October 6 at the Americana Hotel, New York City. The meeting will coincide with meetings of the American Society of Oral Surgeons and the International Society of Oral Surgeons. Further information may be obtained from M. Gornitsky, 6000 Côte des Neiges Rd., Montreal, Que.

New Committee to Study Organized Dentistry in Quebec

The College of Dental Surgeons of the Province of Quebec and the Quebec Dental Association (ADPQ) have formed a joint liaison committee to study the organization of the dental profession in Quebec. The action was approved by the CDSPQ Board of Governors meeting in Quebec City April 19. It comes as a sequel to a proposed merger between ADPQ and the Professional Association of Dental Surgeons of Quebec.

The liaison committee has been asked

to draft a constitution for a new dental association representative of all Quebec dentists. It will also make proposals for remodelling the College's Act and By-laws.

Named as CDSPQ representatives are Marcel Archambault, Montreal; C. E. Gosselin, Sherbrooke; and D. H. Muhlstock and G. M. Dundass, both of Montreal. Representing the ADPQ are Jacques Fiset, Montreal; Jacques Dufour, Quebec City; Jean-Claude Durand and Hubert Labelle, both of Montreal.

Quebec and Ontario Dental Officials Meet

Officers of the College of Dental Surgeons of the Province of Quebec met with representatives of the Royal College of Dental Surgeons of Ontario and the Ontario Dental Association in April to discuss mutual problems. Topics discussed during the meeting, which was held in Toronto, included discipline, illegal practice, inspection of offices, licensing examinations, National Dental Examining Board of Canada, dental mechanics, continuing education, hospital acts, dental internship, dental auxiliaries, specialties, and organization of the Ontario Dental Association.

Quebec participants included Lorenzo Picard, CDSPQ president; Marcel Archambault, CDSPQ first vice-president; and R. M. Le Blanc, CDSPQ registrar-secretary. Ontario participants were J. D. Purves, RCDS president; W. J. Spence, ODA president; and K. F. Pownall, RCDS registrar and ODA secretary.

Dr. Durran Elected President of Hamilton Academy

J. E. Durran was named president of the Hamilton Academy of Dentistry when that organization held its annual meeting April 18. He succeeds G. K. Scott. Named with Dr. Durran were: E. H. Harper, vice-president; M. W. Saunders, recording secretary; A. H. Leckie, corresponding secretary; W. J. Gregus, treasurer; S. Holick, program chairman; and A. R.

Poag, archivist. A. J. Calzonetti and E. J. Ksiazek were elected directors.

Ottawa Dentists Install Dr. Bugden

H. C. Bugden was recently elected president of the Ottawa Dental Society for 1968-69. He replaces Lionel Metrick. J. Berman is the secretary.

Royal Canadian Dental Corps

Thirty Officers Transferred

Canadian Forces Headquarters recently announced the following postings:

Col. **G. R. Covey** of Toronto has been transferred to the Division of Dental Services, Ottawa, as director of staffing and training for the Royal Canadian Dental Corps. Col. **L. G. Craigie** of Kamsack, Sask., has been posted to the RCDC School, Canadian Forces Base Borden, Ont., as commandant. Lt.-Col. **N. A. Butcher** of Melancthon, Ont., has gone to Winnipeg as regional dental officer for Manitoba and Saskatchewan and was appointed commanding officer of No. 14 Dental Unit.

Transferred to No. 4 Dental Company, Europe, as commanding officer is Lt.-Col. **G. E. Windsor**, Kamsack, Sask. Also posted to Europe are Captains **J. A. R. Fortier**, Montreal, **J. P. D. C. Grise**, St. Jean, Que., **W. D. MacKenzie**, Banff, Alta., and **G. D. Petrie**, Toronto.

Capt. **J. G. Thompson**, Campbellford, Ont., has returned to Halifax from Cyprus and has been replaced by Capt. **J. H. Nadeau**, Montreal. Capt. **C. J. M. Boston**, Salisbury, Eng., was transferred to Brunsum, Netherlands.

Lt.-Col. **L. A. Richardson**, Viking, Alta., recently returned from Europe, and Maj. **P. R. McQueen**, Moose Jaw, Sask., have gone to Ottawa. Officers transferred to Halifax are Majors **J. I. Gordon**, Halifax, and **J. W. Jolly**, Toronto, and Captains **A. F. Brothers**, Cambridge Station, NS, and **K. P. H. Buchholz**, Fort William, Ont. Maj. **J. J. B. Houde**, Sherbrooke, Que.,

and Capt. **J. L. A. R. Bourcier**, Montreal, were posted to St. Jean, Que. Capt. **F. G. C. Arpin**, Tracy, Que., was transferred to Bagotville, Que.

Other postings include Lt.-Col. **W. W. Anglin**, Windsor, NS, to Trenton, Ont.; Maj. **J. J. Walker**, Toronto, to Clinton, Ont.; Capt. **C. W. Kearns**, Saskatoon, Sask., to Petawawa, Ont.; Maj. **R. H. Headley**, Sydney, NS, to Shilo, Man.; Capt. **D. L. Brown**, Edmonton, to Saskatoon, Sask.; Maj. **C. L. Gullekson**, Excel, Alta., to Moose Jaw, Sask.; Maj. **W. R. Collier**, Salmon Arm, BC, to Edmonton; Capt. **R. B. Andrews**, Kamloops, BC, to Cold Lake, Alta.; and Maj. **R. J. Paturel**, Halifax, and Capt. **T. J. Erskine**, Teulon, Man., to Esquimalt, BC.

Economics

Pay BC Dentists for Hospital Dental Services

Medically required surgical procedures performed by a dentist in a hospital will be deemed to be services rendered by a physician under British Columbia's Medical Services Act, BC Provincial Secretary W. D. Black told delegates at the CDA national convention in Vancouver June 28. Mr. Black explained that a provincial Order-in-Council to this effect was passed June 10. It accords with an amendment to the Canada Medical Care Act and paves the way for compensation of dentists in respect of the covered services under the terms of British Columbia's participation in the federal medicare scheme.

BC Dentists Withdraw Welfare Service

Since July 1, British Columbia dentists have withdrawn all dental services except emergency care from patients on the provincial government's welfare rolls. The dentists receive 57 per cent of their 1966 fee schedule for treating welfare patients. They want to be paid 90 per cent of their fees as are physicians under Brit-

ish Columbia's version of national medical care which came into force July 1.

Bursaries Ease Saskatchewan Dentist Shortage

A program adopted by the Saskatchewan government to ease the shortage of dentists is showing definite signs of success, according to J. J. Clarkson, the provincial deputy minister of public health. Between 10 and 15 new dentists will settle in Saskatchewan this year as a result of the government's bursary program.

The province gives financial aid to students who promise to return to Saskatchewan to practise. Eighty dental students now receive bursaries; eight others are on postgraduate training. The government also grants up to \$5,000 to assist dentists in setting up practice in areas where they are particularly needed. If they stay a minimum of five years, the grant is written off. Establishment grants have so far been given to three dentists.

Dental Insurance Increases in US

The recent growth of dental insurance — now covering a record four million persons — has been phenomenal, delegates to a recent American Dental Association conference on insurance were told. J. F. Follman, Jr., director of information and research, Health Insurance Association of America, told the delegates of the rapid growth in dental insurance since 1963.

According to Mr. Follman, insurance companies now protect 1.7 million individuals. Benefits paid under these coverages exceeded \$32 million in 1966. The number of insurance companies offering coverage increased from 26 in 1963 to 36 in 1968. According to Mr. Follman, the next largest providers of dental insurance after insurance companies are dental service corporations and labour union programs.

British Pay Freeze Hit

British physicians and dentists have criticized a government announcement that

there will be no annual pay raises for members of the National Health Service. They will receive higher basic and supplementary allowances, but the pay boosts they had anticipated will not be awarded. A dentist's average income is \$9,030.

Research

New York U Launches Periodontic Research

New York University College of Dentistry has accepted a \$176,262 grant from the Hartford Foundation for a major study to pin down the cause of periodontic disease and search for effective weapons against it. The grant will enable NYU microbiologists to determine whether the disease is caused by a destructive interplay between strains of streptococci and their by-products. These sugar-like by-products, dextran and levan, may play major roles in the development and progression of the disease. Both apparently protect bacteria from removal, help them cling to the teeth and open the way for them to attack the supporting structures. They may also create space between the gingiva and teeth where pockets of infection can develop, and even add to the damage by producing acid that apparently helps break down mineral tooth structure.

Further study results may indicate that tooth decay and periodontic disease are symptoms of a single disease. If this is true, it could mean that one day most dental disorders will be capable of treatment and possible prevention by removing or deactivating the bacterial by-products that help the bacteria cling to and attack the teeth.

Dextranase, an enzyme that destroys dextran, was recently hailed as a potential "major break-through" in the control of tooth decay. NYU scientists will experiment with this agent as a possible weapon against periodontic disease. They explain that the highly branched, chain-like molecules of dextran entwine and form the tenacious plaque on teeth. The plaque, they say, spreads down the teeth, separating them from the gingiva, thus

opening the way for embedded organisms to reach and attack the teeth and adjacent subgingival tissues. The combination of plaque and organisms also breaks down periodontic fibres, thereby loosening the tooth. Streptococci ferment levan, producing an acid that may contribute to this destructive action.

The scientists will analyse affected teeth to see whether dextran or dextran-producing organisms are found along the advancing line of periodontic damage. They will also test periodontic pockets for acidity, a sign of levan.

Laboratory animals will be infected with dextran-forming organisms isolated from the mouths of periodontic patients. These are expected to develop the disease, while non-infected control animals are expected to stay free of the disease.

Though these experiments may link streptococci with periodontic disease in man, they will not necessarily incriminate dextran or levan as influential agents. To do this, the researchers will make the influence of dextran and levan measurable by removing them, blocking their action and controlling them with various chemical and mechanical means. Experimentation with techniques for cleaning the teeth and with the use of dextranase, fluorides, antibiotics and other agents, may produce effective weapons for the treatment or prevention of periodontic disease.

The NYU scientists will also try to immunize laboratory animals with dextran and levan to see if antibodies can be produced to give natural protection against periodontic infection.

Postulate Caries Immunity Mechanism

Two US Navy dentists described a caries immunity phenomenon at the recent session of the International Association for Dental Research. IADR held its 46th annual session in San Francisco March 21-24. Gordon Rovelstad and Irving Shklair of the Great Lakes Naval Dental Research Institute explained that white blood cells in individuals who never suffered from tooth decay will destroy car-

ies-causing bacteria to a greater extent than those same cells in persons with extensive decay problems. They postulated the presence of an immunological factor present in caries-free persons that could aid in the control of tooth decay.

In another presentation, Robert Stephan of the US National Institute of Dental Research suggested that cookies and candy bars may one day be made into nutritional boosters to fight caries. Describing experiments with fish protein concentrate (FPC), he said that mixing fish powders with table sugar reduces the sugar's ability to cause caries in laboratory rats. If the FPC works as well in humans, he noted, it could be added to snack foods to make them more nutritious and less cariogenic.

P. N. Baer, also on the NIDR staff, reported that transmissibility outweighs hereditary factors in the formation of dental calculus in animals.

Kamal Asgar, University of Michigan, described a new cobalt alloy which may result in longer-lasting partial dentures. The material contains 50 per cent cobalt, 25 per cent chromium, 19 per cent nickel and small amounts of molybdenum, iron, magnesium, silicon, carbon and copper.

G. M. Brauer of the National Bureau of Standards said that new aluminum oxide reinforced dental cements may prolong the life of tooth restorations. He reported that the high strength and low solubility characteristics of the aluminum oxide reinforced materials, as well as their ease of manipulation, suggest use of the products for the final cementation of cast crowns and as an insulating base under metallic fillings.

Robert Hertz of the University of California at Los Angeles Dental School suggested that extracted teeth, treated with cobalt radiation, may be the answer to the long sought tooth bank. He commented that radiation treatment of teeth, similar to treatment used in bone banks, may sterilize and preserve a tooth for indefinite storage, but may also solve the rejection problem. He said that radiation of extracted teeth appears to alter the protein material that triggers the rejection mechanism, but it is too early to determine if rejection can be prevented permanently.

Fluoridation

Fluoridation Reaches Six Million Canadians

The Canadian Dental Association reports that at the end of 1967, 6,063,000 persons resided in 313 communities with controlled fluoridation in Canada. In addition, 197,000 persons were living in communities with natural fluoridation, thus increasing the total number of persons receiving the benefits of the measure to 6,260,000. This figure represents 30 per cent of the total population or 43 per cent of the population on piped drinking water supplies.

Comparable year end figures in the United States show 81,925,000 persons served by the measure.

Montreal Students Promote Fluoridation

Students at McGill University and the Université de Montréal have formed an inter-university committee to promote the acceptance of fluoridated water for the city of Montreal. The group will seek close liaison with members of the city's Executive Council in pursuing this objective. Spokesman for the committee is Mr. R. S. Bell, 8016 George Ave., Lasalle, Que.

Charlottetown Water Fluoridated

After some delay caused by an attempt by opponents to obtain an injunction, fluoridation commenced at Charlottetown April 23 for its 18,900 residents.

Prince Edward Island's capital city is the first municipality in the province to adopt this public health measure. This leaves New Brunswick as the only province without a fluoridation program in operation.

Awards and Honours

K. W. Davey, Toronto, has been appointed chairman, Dental Committee, Ontario

Division, Canadian Red Cross Society. Dr. Davey is chief of dentistry, Toronto Hospital for Sick Children; assistant professor of paedodontics, University of Toronto; and dental consultant to the Canadian Hemophilia Society and Ontario Crippled Children's Centre.

Don W. Gullett, Willowdale, Ont., former secretary of the Canadian Dental Association, was awarded the Medal of Service of the Order of Canada June 28. The award was one of 23 announced by Governor General Roland Michener. The Medal of Service is awarded "on the basis of merit and for service to Canada and humanity in general."

Dr. Gullett is also the recipient of a Canadian Centennial Medal which is conferred in recognition of valuable service to the nation.

M. J. MacDonell of Saskatoon, Sask., was elected an honorary life member of the Saskatoon Dental Society recently. A 1920 graduate of the Royal College of Dental Surgeons of Ontario, Dr. MacDonell has served on the provincial board of dental examiners of the College of Dental Surgeons of Saskatchewan and was president of the Saskatchewan Dental Council. He is a fellow of the International College of Dentists and has served three years on the Senate of the University of Saskatchewan.

H. G. Pettapiece of Parksville, BC, a former president of the British Columbia Dental Association, was named British Columbia's 'Dentist of the Year' June 28.

R. P. Christie of Courtenay and **H. L. Coursier** of Vernon, BC, received the British Columbia Dental Association's '25-50-75' awards June 28. These are given to dentists who have practised 50 years, 25 of them in British Columbia.

R. L. Ellis of Preston, Ont., has been awarded the Glenn T. Mitton Medal on completion of the course leading to a di-

ploma in dental public health at the University of Toronto. Dr. Ellis was also selected by the University of Toronto's School of Hygiene as the winner of the Donald T. Fraser Memorial Medal which is the senior award in the School of Hygiene. This is the first time since the award was established in 1957 that it has been awarded to a student in dental public health.

Deaths

Ayre, Howard George McWilliam. 65. Fort Frances, Ont. University of Toronto, 1934. 3-6-68. Survived by Edith (wife).

Gagnon, Thomas Donald. 36. Dorval, Que. McGill University, 1958. 1-7-68. Survived by Shirley (wife); Glenn and Jeffery (sons); Gail (daughter); Mrs. F. E. Doyle (mother); G. F. Gagnon (brother); and Mrs. T. M. Grant (sister).

O'Brien, Garnet Wolesley. 86. Amherst, NS. Baltimore College of Dental Surgery, University of Maryland, 1905. 23-6-68. Survived by Dottie (wife); Mrs. Wendell Hewson (daughter); and four grandchildren.

Schwartz, Hyman Herbert. 64. Montreal. McGill University, 1927. 7-6-68.

Smith, Franklin Paul Ronald. 33. Peterborough, Ont. University of Toronto, 1958. 30-6-68. Survived by Glenna (wife); David (son); Karen (daughter); Mrs. Helen Smith (mother); and Mrs. Keith Routley (sister).

Smith, Walter James. 56. Toronto. Royal College of Dental Surgeons of Ontario, 1937. 25-6-68. Survived by Marguerite (wife); Douglas (son); Nancy and Susan (daughters); Mrs. Mildred Smith (mother); and Mrs. William Webb (sister).

A Chairside Manual of Clinical Endodontics

John Dowson and F. N. Garber. St. Louis, The C. V. Mosby Company, 1967. 132 p. Illus. \$10.80

Many textbooks have appeared since the advent of aseptic endodontics about 25 years ago. Books dealing with a particular subject have a common denominator and new textbooks are simply an extension of the investigation and research in that subject.

This is the first manual of endodontics to be published. Webster defines a manual as: (1) a handbook; (2) the specified manner of training with a weapon, as a manual of arms. Though weapons are not used in dentistry, there is an analogy to the training with an armamentarium of instruments.

The authors assert in the first chapter that "every patient complaint regarding a tooth is not necessarily an endodontic problem, and removal of the pulp tissue may not be necessary." How true! This echoes a quotation from one of the early issues of the *Journal of the American Association of Endodontists*, to wit: "The first step in endodontics is to still try to maintain the vitality of the tooth."

Though the entire book is excellent, the description of lingual and occlusal opening in chapter 9 is particularly commendable. If direct and adequate access is not gained to the pulp chamber and canal orifices at the outset, the case is doomed to failure. It is then impossible to execute properly succeeding steps like removal of all dentine overhanging the roof of the pulp chamber. As a result, pulp tissue and debris cannot be completely removed, there is insufficient space for antiseptic dressings, and the canals cannot be properly reamed and filled.

I highly recommend this book. Students could not wish for a more practical guide to clinical endodontics. The graduate dentist will find it a ready aid to refresh his knowledge. The authors and publishers are to be congratulated for making this timely work available.

L. J. Rosen

Immediate and Replacement Dentures

J. N. Anderson and Roy Storer. Oxford, Blackwell Scientific Publications, 1966. (Available from The Ryerson Press, Toronto) 362 p. Illus. \$14.25

The preface describes *Immediate and Replacement Dentures* as a textbook for undergraduates and practitioners on the complete denture phase of dental treatment. The arrangement departs from the usual format of textbooks on complete dentures that commence with the completely edentulous patient.

This book devotes the first four chapters to the various clinical conditions in partially edentulous patients who are destined to lose their remaining teeth. The patient is considered as a person with problems and the authors discuss the factors to be weighed prior to extraction of the remaining teeth. Instead of presenting detailed clinical and laboratory procedures, the authors emphasize and enlarge on the underlying principles of immediate dentures and dentures for the already edentulous person. Clinical and laboratory techniques are not neglected. They are presented with the assumption that the reader already has some knowledge of the procedures and they stress the pitfalls to avoid and precautions to be observed.

From beginning to end, the reader is carried along in a logical sequence from the examination of the partially edentulous patient to function fully restored by complete dentures. The final chapters deal with the often neglected phases of fitting dentures to the patient and refining the occlusion. A comprehensive bibliography, constituting an excellent source of reference material, completes the edition.

The book, written with clarity, is well illustrated with excellent photographs and very clear line drawings. The print, although not large, is clear and very readable. This most valuable addition to dental literature can be highly recommended to undergraduates and practitioners as well as to teachers of prosthodontics.

K. M. Kerr

A duty for all dentists

The annual appeal to the dental profession by the Canadian Fund for Dental Education starts on October 1. If every dentist would give \$10, the resulting \$65,000 would more than match the total contributions from the dental profession over the past six years.

Last year 356 dentists — out of more than 6,500 potential givers — subscribed in some way to CFDE. It is easy to rationalize, in a superficial way, non-participation; to regard the appeal as just another irritation; to argue that our own 'needs' must come first. But the cost of this good cause should not be a charge on the charitably-minded alone; it should be shared by all members of the profession.

There are many compelling reasons for helping CFDE. Canada needs more dentists. To train them, we need more teachers. By 1977, an additional 200 instructors will be required by Canada's dental schools. There can be no more dentists without sufficient funds to train them. Most dentists who apply for teaching fellowships must leave the country for two or more years' postgraduate training. These young applicants, most of them recently married, face expenses in excess of \$15,000 to move and support their families and pay for tuition while earning no income. There is also the personal money reason for giving to CFDE — contributions are tax deductible.

But there is one reason which is more important than all of these; a reason as telling and as old as human conscience. As long as there are in this world both those in need, and those with more than they need, the former must be a charge upon the latter. We use the word 'need' not in the sense of force, nor even in the sense of obligation. We use it simply in the sense, given it by human history, of man's desire to extend help to his fellow-man. Supporting CFDE thus becomes an intellectual as well as an emotional exercise. It is obviously one of the best ways in which dentists can demonstrate concern for the health of the nation and the welfare of their profession.

The dental profession has enjoyed a prosperous year. It has the resources to fill CFDE's coffers to overflowing well within the 30 day limit set for the campaign. Dentists are generous. By no means the richest members of society, they often donate far more per capita to worthy causes than their fellow citizens. In fact, 299 dentists, including 132 new first time donors, have already pledged or contributed \$4,000 — an average of \$13.88 apiece — toward this year's campaign objective. We urge their colleagues to be equally generous with their contributions. It is only by broadening the basis of giving that we can hope to keep up

with expanding education needs. For if the profession fails CFDE, it will surely pay for its parsimony. The unpaid bill will be on the counter each time legislators request more services for the public. For this reason alone next month's drive should have high priority among all appeals to our pocket-books.

And as the campaign opens, let us put an end to that hoariest of excuses; the so-righteous complaint that governments should take care of all dental education costs through taxes. Governments do not, and CFDE seeks to remedy the need — at least in part.

Two omissions would add up to nothing; nothing at all!

Une responsabilité que tous les dentistes doivent assumer

Le Fonds canadien pour l'enseignement dentaire lancera son appel annuel à la profession, le 1er octobre. Si tous les dentistes donnaient \$10, la campagne produirait \$65,000, ce qui dépasserait la totalité des contributions de la profession dentaire au cours des six dernières années.

L'année dernière, 356 des 6,500 donateurs éventuels ont souscrit, d'une façon quelconque, au FCED. Il est facile de justifier superficiellement la non-participation: l'appel représente une irritation de plus, charité bien ordonnée commence par soi-même. Mais cette "bonne cause" ne devrait pas être à la charge des seuls individus charitables, tous les membres de la profession devraient y participer.

Les raisons d'aider le FCED sont à la fois nombreuses et convaincantes. Le Canada a besoin de plus de dentistes. Pour les former, il nous faut plus de professeurs. D'ici 1977, il faudra 200 instructeurs de plus dans les facultés dentaires canadiennes, mais il est impossible d'augmenter le nombre de dentistes si on manque de fonds pour les former. La plupart des dentistes qui demandent des bourses d'enseignement doivent quitter le pays pour suivre des cours post-gradués, pendant deux ans ou plus. Ces jeunes dentistes, jeunes mariés pour la plupart, doivent faire face à des dépenses qui se montent à plus de \$15,000 pour couvrir les frais de déménagement, nourrir leur famille et payer leurs cours, à un moment où ils n'ont aucun revenu. Un don au FCED présente aussi un avantage pécuniaire personnel, celui d'être déductible aux termes de l'impôt sur le revenu.

Mais il y a une raison de donner qui est plus importante encore, une raison aussi profonde et aussi ancienne que la conscience humaine.

Aussi longtemps qu'il y aura dans le monde des gens dans le besoin et des gens qui ont plus qu'il ne leur en faut, les uns devront s'occuper des autres. Nous n'employons le mot "besoin" ni dans le sens de force, ni même dans celui d'obligation. Nous l'utilisons simplement dans le sens que lui a donné l'histoire humaine, le désir des hommes d'aider leurs semblables. Aider le FCED devient alors un exercice intellectuel aussi bien qu'émotif. C'est évidemment l'un des meilleurs moyens pour les dentistes de prouver qu'ils se soucient de la santé de la nation et de la dignité de leur profession.

La profession dentaire a eu une année prospère. Elle a les moyens, pendant les trente jours de la campagne, de remplir les coffres du FCED au point de les faire déborder. Les dentistes sont généreux. Bien qu'ils ne soient pas parmi les

membres les plus riches de notre société, ils donnent souvent plus, par personne, que le reste de la population, lorsqu'il s'agit de causes valables. En fait, 299, dont 132 qui contribuent au fonds pour la première fois, se sont engagés à donner ou ont donné \$4,000—une moyenne de \$13.88 par personne—pour que la campagne atteigne son objectif. Nous prions leurs collègues de faire montre de la même générosité. Ce n'est qu'en augmentant nos dons que nous pouvons espérer faire face aux besoins croissants de l'enseignement. Si la profession fait défaut au FCED, son avarice lui coûtera cher: la facture non payée lui sera présentée chaque fois que les législateurs demanderont plus de services pour le public. Pour cette seule raison, la campagne du mois prochain devrait être prioritaire sur la liste de vos libéralités.

Et au moment de l'inauguration de la campagne, débarrassons-nous une fois pour toutes de la plus ancienne des excuses: la contention si respectable que le gouvernement devrait assumer tous les frais de l'enseignement dentaire, en le finançant au moyen des impôts. Les gouvernements ne le font pas et le FCED cherche à remédier à cette lacune, tout au moins en partie.

Deux omissions ne donneraient rien de positif: le résultat serait zéro.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.

From the FDI President

To the Editor:

Earlier this summer I had the privilege of visiting your country as president of the Fédération Dentaire Internationale. It was a short trip, unfortunately, but during my brief sojourn I was able to meet many members of the Canadian Dental Association from different parts of the country.

This short letter affords me the opportunity, through the courtesy of your columns, to thank all those colleagues who went out of their way, during their busy lives, to make me welcome and to make me feel proud that the Canadian Dental Association is a member of the FDI.

I was wrong in thinking, before my trip, that the problems of world dentistry might be of little interest to the members of your Association. Indeed, I encountered a profound interest in the Federation and an ap-

preciation of the work which is being done by the FDI.

I feel that many dentists in Canada are not aware that they can become individual supporting members of the FDI and thus show in a practical form their readiness to play a part in world dentistry. It is a simple matter of applying for an enrolment form from the secretary, Dr. W. G. McIntosh, at the Canadian Dental Association Headquarters in Toronto.

The supporting members receive the *International Dental Journal* and the quarterly *News Letter* and they have the privilege of attending the annual meetings of the Federation.

In conclusion, may I say how much I was impressed with the annual meeting of your Association in Vancouver and how grateful I am for the hospitality and friendship extended to me during my visit. It was for me a memorable trip.

W. Stewart Ross, FDI President,
19 Cavendish Square,
London W1, England.

Kurer Anchor System

To the Editor:

As one of the British dentists who has received your Journal over the last six months I would like to congratulate you on this very fine publication.

I noticed in the June issue a list of available educational films and wondered whether anyone in Canada would be interested in borrowing my film, "The Kurer Anchor System," and whether you would wish to announce its availability?

This film was selected for showing last year at the international meeting in Paris where it received a certificate of merit. It has since been shown at the bi-annual meeting of the New Zealand Dental Association and another version with a German sound track was shown at the Cologne meeting last August.

The film discusses the reasons for failure of post crowns and describes a new method of cutting a thread in the root canal and inserting a matching screw post. This 16 mm. colour sound film lasts 20 minutes and can be borrowed on request provided it is available at such time.

P. F. Kurer, LDS,
39 Deansgate,
Manchester 3, England.

L'Association professionnelle des chirurgiens-dentistes du Québec

Au rédacteur:

Dans la livraison du Journal de l'ADC de juin 1968, volume 34, no 6, aux pages 329 et 341, en parlant de l'Association professionnelle des chirurgiens-dentistes du Québec, vous ajoutez: "Connu précédemment sous le nom de Syndicat de l'Association professionnelle".

Nous désirons attirer votre attention sur les faits suivants et nous espérons que vous ferez les corrections nécessaires. Du tout début, soit depuis juin 1966, date de son incorporation, notre Association n'a jamais portée d'autre nom que celui de l'Association professionnelle des chirurgiens-dentistes du Québec.

De plus, comme vous le savez sans doute, la province de Québec est la seule province où les professionnels non-salariés ont la possibilité sinon l'avantage de se grouper sous la loi des Syndicats Professionnels. Face au contexte social, économique et politique où nous vivons et face à l'assurance-maladie, nous avons voulu nous adapter aux conditions présentes et nous donner les meilleurs instruments pour défendre nos intérêts.

Jean-Claude Durand, DDS,
Président de l'APCDQ,
800 est, boul. Henri-Bourassa,
Montréal 12, Qué.

"... also wash your mouth with a little fair water after meats; for the only way to keep teeth sound, and free from pain, is to keep them clean."

Nicholas Culpeper, 1616-1645



Record of achievement

The formation of a charitable trust "for the purpose of aiding and assisting dental education in Canada" resulted from initiatives taken by representatives of the Canadian Section of the American Dental Trades Association and the Canadian Dental Association. In 1962, the five founding trustees, representing four geographical regions of Canada and the dental trade association, embarked on an exceedingly ambitious program with great courage, confidence in the goodwill of the Canadian dental profession and the allied trades, and only the \$15,000 contributed by the two associations. Despite the problems of communication and travel in this vast country the new project has achieved a reasonable degree of success during its first five years. The Canadian Fund for Dental Education has provided more than \$59,000 in fellowships to 27 dentists preparing to enter teaching or research careers. This includes allocations to 14 new fellows and renewals for an additional five in 1968 alone. There have been substantial grants to the newly formed Association of Canadian Faculties of Dentistry, and four annual grants to each dean for special educational purposes within the separate Canadian dental schools. Moreover, CFDE has established a reasonable capital reserve so essential to the stability of the several projects being supported. This is a fine record of accomplishment; but in terms of the requirements to be met, it is at best a modest beginning.

Each dentist, by virtue of specialized

education leading to professional membership, enjoys particular benefits and privileges in the community. His position is enhanced by continued advancement of the profession which, in turn, is essential to the improvement of dental health in society. While the application of technical advances from other areas will continue to play an important role in dentistry, the more significant long term effects will result from improved education and research within the profession.

Some dentists may question the need for a national fund raising agency like CFDE when governments and universities are increasing the level of their support and when the opportunity exists to make private donations directly to the individual dental schools. Let it be abundantly clear that CFDE has no desire to compete or to interfere in any way with direct contributions to the universities. Such gifts are needed and should continue to be provided in increasing amounts. At the same time, private support is needed for nationally significant projects which directly benefit all Canadian schools. Similar aid is required for other measures which are directly or indirectly advantageous to the public and the profession. CFDE can and must serve as a catalyst to accelerate the rate of growth of dental education and research. The Fund accordingly directs its efforts and makes its most important contribution in areas where there is a demonstrated need and where financial support from other sources is either inadequate or lacking.

Within the foreseeable future the Fund's resources will certainly never be sufficient to permit any duplication of effort with other agencies.

There are additional benefits to be derived from the Fund of which the founders were not aware. It can stimulate closer bonds between the dental schools and foster similar links among members of the profession within and between different provinces. The importance of these interactions is growing as external forces exert a disquieting, if sometimes useful, influence on the profession.

Benefitting from earlier experience of the American Fund for Dental Education, CFDE has directed its initial fund raising efforts to the dental profession and the closely allied trades and industry. Broad-based support from those most intimately related to the projects is an essential prerequisite to generating interest and donations from other sectors of society.

In the past few months officials of the Fund have also presented their case to a number of firms not directly associated with dentistry. They did so in order to obtain reactions and gain experience rather than in the expectation of substantial gifts.

The results were most interesting. Almost without exception it was relatively easy to gain access and have a most cordial hearing from senior representatives in each of the companies. All these officials exhibited a very real interest. On reflection, this is not surprising for, unlike the case of other voluntary appeals, almost everyone had personal or family dental problems. Moreover, this was their first introduction to a voluntary charitable organization exclusively concerned with the improvement of dental health on a national scale. An unexpected side benefit was the very distinct impression that the Fund has a tremendous public relations potential for the dental profession.

Two of the first questions asked by everyone interviewed were: "What are your financial goals?" and "To what extent are you being supported by members of the profession?" The latter question makes it quite certain that the number of dentist contributors is of equal, if not greater, importance than the total dollar value of contributions from the profession.

Clearly, there was an unusual degree of interest. Equally clear is the fact that, despite their sympathies, these business leaders will not assist until a demonstrated need and the stability of the Fund are firmly established. We must build a strong case over a period of time before substantial gifts can be anticipated.

October 1968 has been designated as CFDE month, a special reminder for all Canadian dentists that here is an opportunity to invest in the future of the profession and at the same time to acknowledge "that which has been given to them in their student days." Generous gifts from a small number of dentists in the past year (equivalent to an average of less than a dollar per capita) have enabled the Fund to assist in the training of 19 dental teachers for the future. As little as one dollar per month from each dentist in Canada would more than double CFDE's 1967 income from all sources. The trustees could then augment the number of fellowships, increase the support for urgently needed teachers of dentistry and dental hygiene, and extend their support to other important and needy fields of dental education and research. Whether the gifts be large or small, it is important to demonstrate by the number of contributors that CFDE is indeed recognized and supported by the profession as a whole, so that non-dental contributors may be convinced that their additional aid is both welcome and worthy. Here is a story of achievement which the dental profession by individual and cooperative effort can transform to a story of great success.

J. D. McLean

Une réalisation

Ce sont les initiatives prises par les représentants de la section canadienne de l'American Dental Trade Association et de l'Association dentaire canadienne qui ont permis d'établir un fonds philanthropique dans le but d'aider et d'encourager l'enseignement dentaire au Canada. En 1962, les cinq administrateurs-fondateurs, représentant quatre régions du Canada, et la Dental Trade Association ont inauguré un programme extrêmement ambitieux, avec beaucoup de courage, de confiance dans la bonne volonté de la profession dentaire canadienne et des commerces qui s'y rattachent et seulement \$15,000 fournis par les deux associations. En dépit des problèmes de communications et des distances dans ce vaste pays, le nouveau projet a assez bien réussi au cours de ses cinq premières années d'existence. Le Fonds canadien pour l'enseignement dentaire a fourni des bourses d'un montant de plus de \$59,000 à 27 dentistes qui se destinaient à l'enseignement ou à la recherche. Ceci inclut, en 1968 seulement, des allocations à 14 nouveaux "fellows" et le renouvellement de cinq autres. L'Association des facultés dentaires, nouvellement formée, a reçu des subsides substantiels et chacun des doyens a reçu quatre subventions annuelles pour des projets éducatifs spéciaux. De plus, le FCED a établi un fonds de réserve raisonnable, essentiel à la stabilité des projets qu'il commandite. C'est une réalisation appréciable, mais à la lumière des besoins à satisfaire, ce n'est, tout au plus, qu'un modeste début.

Les dentistes, grâce à l'enseignement spécialisé dont ils ont bénéficié, sont membres d'une profession libérale et comme tels, jouissent d'avantages et de

privileges spéciaux dans la communauté. Leur position est renforcée par l'avancement constant de leur profession qui, à son tour, est essentiel pour améliorer la santé dentaire du public. L'application des progrès techniques dans d'autres domaines continuera à jouer un rôle important en dentisterie, mais c'est l'amélioration de l'enseignement et de la recherche au sein de la profession qui produira les effets à long terme les plus appréciables.

Certains dentistes douteront peut-être du besoin d'une campagne nationale entreprise par une agence telle que le FCED, alors que les gouvernements et les universités intensifient leur appui et qu'il existe la possibilité de faire directement des dons privés aux différentes facultés dentaires. Qu'il n'y ait pas le moindre doute sur cette question: le FCED n'a aucunement l'intention de rivaliser avec les contributions directes aux universités ni d'avoir quoi que ce soit à faire avec elles. Ces dons sont nécessaires et devraient non seulement continuer mais augmenter.

En même temps, il faut de l'aide privée pour des projets d'une valeur nationale dont toutes les facultés dentaires canadiennes profitent directement. Cette aide est nécessaire pour permettre de prendre d'autres mesures, directement ou indirectement à l'avantage du public et de la profession. Le FCED peut et doit servir de catalyseur pour accélérer le taux de croissance de l'enseignement et de la recherche dentaires. En conséquence, le fonds canalise ses efforts et contribue le plus dans les domaines qui en ont le plus besoin, lorsque l'appui financier en provenance d'autres sources est insuffisant ou fait entièrement défaut. Autant

qu'on puisse le prévoir, les ressources du fonds ne sont jamais suffisantes pour lui permettre d'empiéter sur les activités des autres agences.

Le fonds produit également des avantages supplémentaires que ses créateurs n'avaient pas envisagés. Il encourage des relations plus étroites entre les facultés dentaires et resserre les liens entre les membres de la profession des différentes provinces et au sein d'une même province. L'importance de ces réactions augmente au fur et à mesure que des forces extérieures provoquent des remous, parfois utiles d'ailleurs, dans la profession.

Forte de l'expérience de l'American Fund for Dental Education, la première campagne du FCED fait appel à la profession dentaire et aux commerces qui s'y rattachent. Il est essentiel que ceux le plus intimement concernés par les projets envisagés donnent au fonds leur appui général pour obtenir l'intérêt et les dons d'autres secteurs de la société.

Au cours des derniers mois, les responsables du fonds ont aussi exposé la situation à un certain nombre de firmes qui n'étaient pas associées directement avec la dentisterie. Ils l'ont fait pour connaître leur réaction et pour acquérir de l'expérience, plutôt que pour obtenir des dons substantiels.

Les résultats ont été des plus intéressants. Dans presque tous les cas, il a été relativement facile de prendre contact avec les dirigeants des compagnies et l'accueil a été très cordial. Ils ont tous manifesté un intérêt très réel, ce qui, à la réflexion, n'a rien d'étonnant, car, à l'inverse des autres appels philanthropiques qui ne touchent pas les donateurs directement, presque tout le monde a des problèmes dentaires, personnels et familiaux. De plus, c'était la première fois qu'une organisation philanthropique se souciait exclusivement de l'amélioration de la santé dentaire à l'échelle nationale.

Un avantage supplémentaire, sur lequel on ne comptait pas, a été l'impression très nette que le fonds pouvait améliorer les relations extérieures de la profession dentaire.

Les deux premières questions posées par tout le monde ont été: "Quels sont vos objectifs financiers?" et "Dans quelle mesure les membres de la profession vous appuient-ils?" Cette dernière question confirme notre point de vue: Le nombre de dentistes qui contribuent est d'une importance égale sinon supérieure à la valeur totale, en dollars des contributions de la profession.

On a pu constater un intérêt extraordinaire, mais il était tout aussi clair qu'en dépit de leur sympathie, ces hommes d'affaires n'apporteraient leur aide que dans la mesure où sa nécessité était prouvée et la stabilité du fonds fermement établie. Nous devons consolider le fonds pendant un certain temps avant d'espérer obtenir des dons substantiels.

Octobre 1968 a été choisi comme le mois du FCED pour rappeler aux dentistes qu'ils peuvent miser sur l'avenir de leur profession et pour qu'ils reconnaissent "le don qu'ils ont reçu au moment de leurs études". Un petit nombre de dentistes se sont montrés généreux, l'année dernière, (leurs dons représentent en moyenne moins d'un dollar par personne), ce qui a permis au fonds de contribuer à la formation de 19 professeurs de dentisterie. Une simple contribution d'un dollar par mois de la part de tous les dentistes du Canada ferait plus que doubler le revenu total du FCED en 1967. Les administrateurs pourraient alors augmenter le nombre de bourses, intensifier leur aide si nécessaire pour former des professeurs de dentisterie et d'hygiène dentaire et étendre leur appui à d'autres domaines importants et nécessaires de l'enseignement et de la recherche dentaires. Les dons peuvent être conséquents ou minimes; ce qui est important, c'est de montrer par le nombre de donateurs que la profession dans son ensemble reconnaît et appuie le FCED afin que les donateurs de l'extérieur soient convaincus que leur aide sera à la fois bien accueillie et valable. Voici l'histoire d'une réalisation que la profession dentaire, par des efforts individuels et collectifs, peut transformer en un succès retentissant.

J. D. McLean

Clinical use of a composite restorative

W. R. Scott, DDS and
R. H. Roydhouse,* BDS, MS,
Vancouver, BC

Addent 12 is an aesthetic composite resin filling material containing fine particles of lithium aluminum silicate as a filler. This substance is suitable for Class I pit and fissure cavities, Class III proximal cavities and Class V gingival cavities. Pin reinforced Class IV composite restorations can also give limited service. Used with stainless steel pins, Addent 12 is superior to other materials for the restoration of vital teeth intended as bridge abutments. The wetting or spreading qualities of composite materials tend to diminish marginal penetration but do not eliminate the need for adequate mechanical retention. This is readily achieved with shallower retention walls and larger surfaces than are permissible for amalgam or gold restorations.

L'Addent 12 est un matériau d'obturation esthétique mixte composé de fines particules de silicate de lithium aluminium et d'une base de résine. Cette substance convient aux cavités de points et fissures de la classe I, aux cavités proximales de la classe III, aux cavités gingivales de la classe V. Des restaurations avec pivots de renforts peuvent aussi rendre des services limités pour les cavités de la classe IV. Utilisé avec des pivots en acier inoxydable, l'Addent 12 est supérieur à tous les autres matériaux pour la restauration des dents vitales destinées à supporter des bridges. Les matériaux mixtes ont des qualités de perméabilité et d'extension qui tendent à diminuer la pénétration marginale, mais n'éliminent pas le besoin d'une rétention mécanique suffisante. On peut satisfaire facilement à cette exigence, en fraisant des cavités rétentives peu profondes et plus étendues, qu'on ne pourrait le faire si on employait de l'or ou de l'amalgame.

Composite restorative materials with synthetic resin bases have been introduced by manufacturers. Three materials pres-

ently available have a similar synthetic resin base^{1,2} but differ in filler content. Addent 35 (Minnesota Mining and Manu-

facturing Co.) contains glass beads as a filler. Dakor (L. D. Caulk Co.) is a mixture of base with beads and calcific minerals. Addent 12 (Minnesota Mining and Manufacturing Co.) uses fine particles of lithium aluminum silicate. Dakor, in our experience, varies in consistency and sets rapidly. The failure to control the setting of this material has made its clinical use impractical. Restorations of Addent 35 do not match the colour of teeth in which they are inserted; many of these restorations darken and discolour within six months. Addent 12 has been available for experimentation since 1964. This paper records the authors' clinical observations about this particular composite since that time.

INDICATIONS

The colour, ease of insertion and trimming make Addent 12 suitable for use in Class III proximal and Class V gingival cavities. The material is very useful for restoring large Class V cavities. Addent 12 is easy to manipulate, especially in extensive shallow cavities with convex floors. It is compatible with gingival tissue and resists marginal penetration. These qualities, together with its economic advantages, often give the composite a preferential edge over amalgam, gold or porcelain inlays.

Class I pit and fissure cavities can be restored with composite material, but it is not suitable in large occlusal cavities bounded by thin buccal or lingual walls. Class IV composite restorations with stainless steel pins seated in the gingival floor can give useful service for a limited period. The restored incisal angle may last from six months to two years. But the composite material, like silicate and acrylic restoratives, is liable to chip or abrade at the incisal corner. Such a Class IV restoration provides a base for future three-quarter or full crown preparations. The retention depends in part on the steel pin which usually is sufficiently rigid to resist displacing forces. Because heavy incisal loads can occur in some occlusions, consideration of the direction and extent of occlusal forces is required

before the restorative method is chosen.

Addent 12 used with stainless steel pins seems better than the usual materials for restoring badly damaged but vital teeth intended as bridge abutments. Composite material is preferable to zinc phosphate cement or amalgam for filling undercuts in preparations to be covered by inlays or crowns. The interior of the cavity can then be cut as if the whole, that is the dentine and composite material, were solid tooth structure. Composite material can be cut smoothly and rarely flakes away from the cavity walls leaving voids, as do the phosphate cements. The composite is suitable for temporary restorations before and after endodontic treatment. If the gutta percha filling of the pulp chamber mars the appearance of an anterior tooth, it can be replaced by composite material. In root filled teeth the liner need not be used and a better seal may result.

Addent 12 may be used as a temporary facing material in crowns, especially where original porcelain or ceramic material has fractured. Temporary repairs to failing bridgework are possible, but the material is quite unsuitable for permanent repairs to bridges or crowns where failure is due to improper design or inadequate strength of the casting or tooth structure.

Clinical experience suggests that the composite may fail on account of its greater flexibility compared to gold, porcelain or enamel. (Stiffness is measured by the modulus of elasticity in compression. Addent 12 has 10-20 per cent of the stiffness of cusp enamel, 10 per cent of the stiffness of medium inlay gold, and resembles dentine in its physical properties.) Composite restorations do not fracture in the mouth but seem to bend away from areas exposed to heavy incisal or occlusal forces. The composite restoration abrades. Loss of material is observed after 6-24 months about incisal edges, cusp tips and marginal ridges of molars. Addent 12 is therefore unsuitable for the permanent restoration of occlusal and incisal surfaces. Extensive restorations without adequate retention boxes and grooves change shape under pressure, permitting marginal penetration. If appearance is a factor, modified Class II

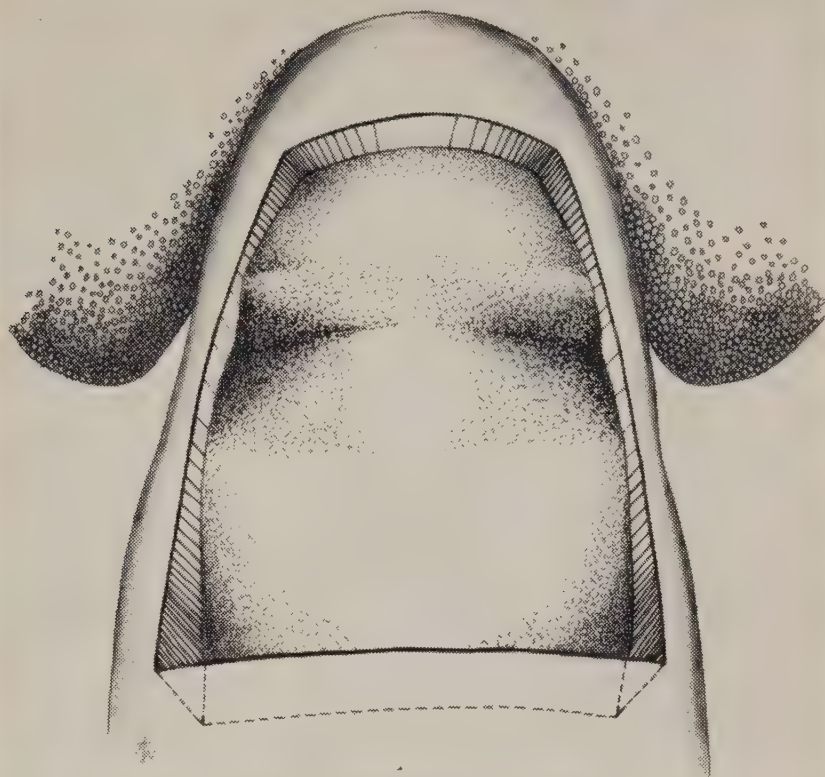


FIGURE 1 The recommended box form of cavities for composites is shown as well as the contour of the pulpal or axial wall. The base of the cavity need not be of uniform depth. Definite walls are present on incisal and gingival aspects of the cavity. On the mesial and distal boundaries most, if not all, walls are well defined. Restorations in saucer-shaped cavities or cavities without definite walls will fail.

cavities with a narrow occlusal isthmus may be considered in lower bicuspid provided the patient is informed of the risk.

CAVITY PREPARATION

Rubber dam is essential for cavity preparation and insertion of the composite materials. Control of the field of operation is established and saliva, blood or exudate from the gingival tissues are excluded from the cavity; otherwise such contaminants interfere with the adaptation of the materials to the walls and floor of the cavities as do debris, cotton fibres, and the like.

Some modifications of customary cavity design of gingival cavities have resulted from our clinical experience with the composite. The Class V preparation shown in Figure 1 is shallower than preparations for amalgam, cast gold or gold foil. Convex floors are possible, thereby obviating extensive removal of dentine. Mechanical retention is created. Opposing retentive walls are parallel or clearly de-

fined and at right angles to the surface. Packing a broad, shallow convex cavity with amalgam is difficult, but the cohesive composite materials flow and fill the cavity. The walls of the box-like cavity meet the axial or pulpal wall at right angles (Figure 1). Cavity margins must be rectangular in cross-section because bevelled margins result in a thin chamfer of composite material which is liable to bend or distort. Enamel walls are not undercut. After establishing the cavity walls with high-speed burs, the resultant friable enamel is removed with hatchets, hoes and chisels.

Individual caries susceptibility is a factor in establishing the cavity outline. The patient's age, the state of oral hygiene, the condition and contour of the tooth structure, and the proximity to the free gingival margin determine whether the cavity should extend below the free gingiva. Such extension, though permissible, should generally be avoided. Cavity boundaries can be limited to the area of defective enamel and dentine when the lesion is well short of the gingiva and the intervening structure is sound and suitably contoured in relation to gingival

health. Class V cavities that do reach the gingival margin should, however, be extended subgingivally (Figure 2).

Proximal extensions of cervical cavities can be relatively shallow and require only minimal retention walls. Such extension tongues can be varied in size and design to suit carious or erosion lesions. Where erosion and abrasion have destroyed the contour of the tooth, it is necessary to box the cavity walls regardless of the size of the cavity (Figure 2). Class III or proximal preparations follow these points of design closely. In some cases the proximal and gingival cavities may be continuous.

MIXING AND INSERTION

The floor of the cavity must first be covered with the cavity liner (a Saran type polymer deposited from acetone³). The ratio of catalyst to base is critical. The components must be mixed sufficiently but mixing must not be prolonged. Unnecessary exposure to air reduces the time available for insertion, and air seems to affect the setting and strength of the final restoration. The vis-

cous material is teased into the cavity with an instrument. A disposable plastic 1 ml. syringe can be used to place the material in the base of deep cavities. The trimming of an over-filled cavity to appropriate contour is preferred. The alternative is to use a matrix band or strip. Some dentists suggest that a smooth final surface is best obtained if that surface is formed against a strip or band. Such a matrix contour is not always suitable, however, especially for extensive gingival restorations (Figure 3). Moreover, we have observed that the outer surface may not be as resistant as underlying layers. Hence, over-filling and trimming permit the development of contours and may provide a more resistant surface. On the other hand, trimming requires special burs, and the removal of material exposes flaws and air bubbles. Microscopic examination of such surfaces shows the presence of small spherical voids. These are due to gas in the composite paste and air incorporated during mixing.

Addent 12 must never be packed like amalgam or silicate cement; otherwise large voids result and the underlying lining coats are disturbed and mixed in with the composite. The material is teased into the cavity. Manipulation should cease

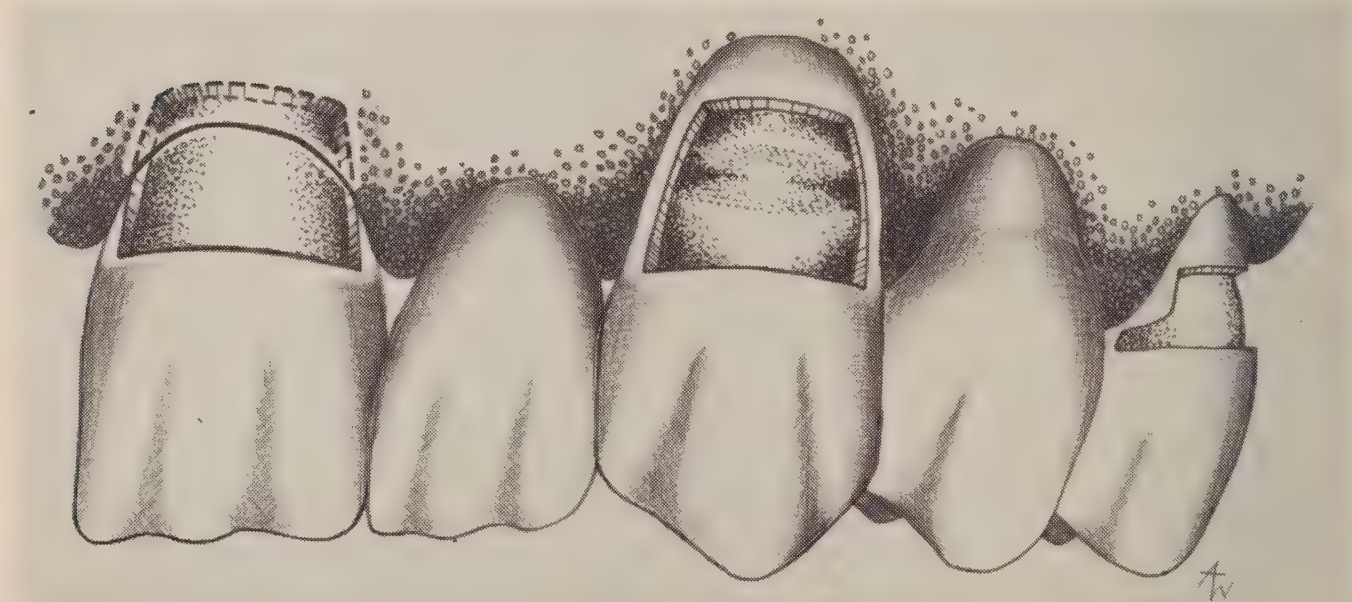


FIGURE 2 Outlines for three typical erosion cavities show that the cavities may be placed beneath the gingival tissues or kept clear of the free gingiva. A proximal extension or tongue is shown in the second bicuspid. Box form with opposing walls parallel or at right angles to the surface is present in all cavities. The cavo-surface margin is a right angle throughout. The contour of the pulpal or axial wall conforms to the general shape of the tooth regardless of extension.

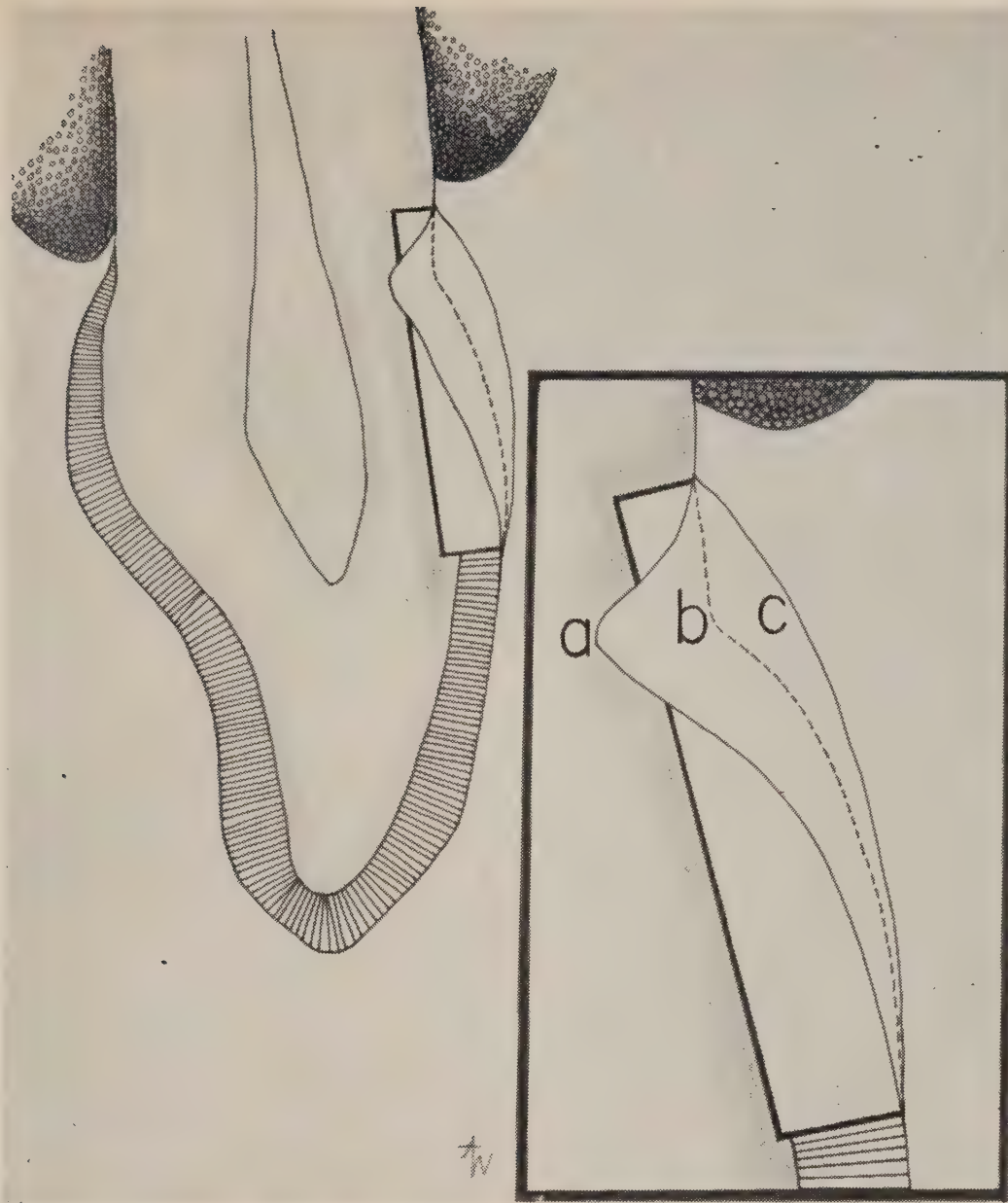


FIGURE 3 Gingival recession and erosion, as in cuspids, may cause marked loss of enamel and dentine (a). Restoration to the original contour (b) may be sub-optimal for continued gingival health. The contour (c) is preferred as this restores the original relationship between crown and gingiva.

when a firmness of gel is detected; otherwise the restorative is pulled away from the cavity walls. The setting mass need not be subjected to pressure.

PULP PROTECTION

The pulpal effects of composite materials are obscured by that organ's reaction to other procedures prior to insertion of the restorative. Composites should be treated like silicate cement and provided

with an adequate lining when the cavity is deep or when the health of the pulp is suspect. The liner supplied by the manufacturers is adequate in shallow cavities if two coats are applied. Calcium hydroxide preparations are necessary in deeper cavities, and the liner is applied over the pulp-protecting calcium hydroxide.

Preparations containing eugenol must be covered with a eugenol-free coat before depositing Addent liner or material because eugenol affects both materials. Cavity varnishes like Copalite can be substituted for Addent liner.



FIGURE 4 Suitable external contours may be created with twelve-bladed carbide burs. Bur 7104,-6,-8 has a reverse curve or double contour which allows creation of bulbous contours proximally (a) or lingually (b). This bur can also be used to blend concavities with convexities to produce the S-shaped contour. Bur 7404,-6,-8 is used primarily to finish concavities, especially difficult surfaces on the lingual side of anterior teeth (c). Bur 7204,-5,-6 has a long taper so that gingival areas may be finished (d). Its shank is sufficiently long to allow correct positioning of the handpiece head clear of the incisal edge. The 12 blades produce a smooth finish without irregularities and undulations.



FINISHING

The surface layer which forms in contact with air may be quite tacky. It should be scraped off so that finishing burs will not clog. Most of the excess material is then cut back with finishing burs, followed by chisels and gold knives. The filling is polished with cuttle and sand discs and finishing strips, possibly lubricated with the wax supplied in the kit. A final polish is imparted with emery paste or cerium oxide. A very fine diamond stone or disc can be used to smooth the surface at a subsequent appointment when the filling is harder.

Finishing burs are used for bulk trimming (Figure 4). A flame-shaped bur 7104, -6, -8 (Jet Burs, Morrisburg, Ont.) with a reversible curve at the tip may be used for interproximal reduction in the upper and lower anterior area. An egg-shaped bur 7404, -6, -8 can be used to obtain contour in anterior lingual regions and occlusal contour in posterior fillings. A long tapered bur 7204, -5, -6 allows contouring of the buccal and lingual surfaces of Class V gingival cavities.

Addent 12 should be trimmed with carbide steel burs because the abrasive nature of the material rapidly blunts carbon steel burs. The twelve-bladed finishing burs for composite fillings produce a smoother finish than six-bladed burs. These burs may also be used for smoother cavity preparation or occlusal correction on tooth structure, gold or even porcelain. They seem to generate fewer

shock waves and occasion less trauma and enamel fractures than the six-bladed carbide burs.

CONCLUSIONS

Addent 12 is a useful addition to the list of dental restoratives and gives good service when used as described in this article. It may produce poor results if improperly handled. The material has inadequacies, especially in the nature of the surface finish and in the number of air bubbles the mixed composite shows. Better lining methods and knowledge of its pulpal effects would be desirable. The wetting or spreading qualities of composite materials may help to reduce marginal penetration but do not eliminate the need for adequate mechanical retention. Such retention is readily achieved with shallower retention walls and larger surfaces than are permissible for amalgam or gold restorations. Hard, tooth-coloured materials are preferable to gold or amalgam in many instances.

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925 West Georgia Street

In dark disguise insidious tartar comes

Incrusts the teeth and irritates the gums.

Auspicious art! before whose magic spell,

Disease and pain shrink shuddering back to hell.

Solyman Brown, 1833

Poem on Diseases of the Teeth.

C. W. B. McPhail,* DDS, MSD, MScD, Saskatoon, Sask.

Epidemiology and its application to dental disease

Epidemiology, the science of the relationships of the various factors which determine the frequencies and distributions of disease in a human community, is helping to unravel the causes of dental disease. Further progress is assured by the development of indices for the measurement of dental caries, periodontic disease and malocclusion; by the adoption of an international dental epidemiological methodology; and by the study of the geographic distribution of these diseases.

L'épidémiologie, la science des rapports entre les différents facteurs qui déterminent la fréquence et la distribution des maladies dans une communauté humaine, aide à découvrir les causes des maladies dentaires. Le développement d'indices pour mesurer les caries dentaires, les maladies périodontiques et la malocclusion; l'adoption d'une méthodologie épidémiologique dentaire internationale, l'étude de la distribution géographique de ces maladies, toutes ces mesures nous feront faire de grands pas en avant.

Epidemiology originated from the study of epidemics that have decimated human populations throughout man's recorded history. Modern epidemiology is the science that describes or measures the distribution of disease and the factors which affect or modify that distribution in and among groups.¹⁻³ This science deals, either singly or in combination, with the characteristics of disease, the background factors of disease and the characteristics of the group under study.⁴

The earliest records of epidemiology date back to Ancient Greece,⁵ a time when great plagues swept the civilizations

of antiquity. These events were generally associated with mysticism and explained in terms of supernatural powers. Hippocrates (circa 400 B.C.), however, contended that mass disease was an ordered phenomenon and not the work of some capricious supernatural power.⁶ Unfortunately, the prevailing beliefs of his day overshadowed the scientific method of investigation and paved the way for mystical and theoretical interpretation during succeeding centuries.

The origin of modern epidemiology is credited to the revival of objective observation of natural phenomena in seven-

teenth century England and France.⁶ The official recording of vital statistics,⁷ the early need and attempts to classify illnesses,⁸ and acceptance of the germ theory⁹ contributed significantly to the elucidation of disease and consequent epidemiological study. The role of biostatistics "as the quantitative aspect of vital phenomena"¹⁰ was another major factor in the advancement of epidemiology.

Experience has enabled us to develop a sound method for epidemiological study, the orderly steps of which have been outlined by Grainger⁷ as follows:

(a) Select and define the problem and be cognizant of its potential importance to scientific knowledge.

(b) Critically review the literature in order to: (1) ascertain and build upon existing knowledge, (2) avoid unnecessary mistakes and duplication of effort, and (3) discover the gaps in scientific knowledge.

(c) Formulate hypotheses and, by a process of elimination and delineation, select for testing those that are within the scope and resources of the investigator and are most likely to yield new information.

(d) Test the hypothesis, having designed the study so as to test the hypothesis in an objective and quantitative manner.

(e) Make inferences which are within the scope of the investigation.

This technique, which proved so valuable in the study and control of communicable illnesses, may be usefully applied to the study of other diseases.¹¹ It has, accordingly, been used with increasing advantage in the investigation of dental disease.

DENTAL EPIDEMIOLOGY

Hippocrates' famous remark about the relationship between ripe figs and damaged teeth is one of the earliest instances of inductive reasoning in dental epidemiology. G. V. Black's observation that dental caries does not affect all tooth surfaces equally was a similar milestone for restorative dentistry. But the lack of

stable interest in dental health delayed the development of meaningful dental disease indices. Consequently "... most of the statistical work relating to dental diseases has been done quite recently and all of it," according to Dunning,¹² "within the twentieth century."

Interest in dental health was re-kindled at the turn of the century when American dentists tried to demonstrate a link between oral and systemic health in children. Dental treatment clinics established for European children likewise began to yield epidemiological data. In 1910 a children's program of complete dental care and supplemental feeding was initiated to demonstrate the value of dental treatment services.¹³ MacKay and Black's studies on Colorado brown stain or dental fluorosis, reported in 1916, became a classic example of epidemiology. Nutritional studies carried out in England during the 1920's yielded further data on dental disease. Though all of this work enhanced our knowledge, the most significant advance stems from the introduction and improvement of dental disease indices during the past 20 years.

INDICES

Dental Caries.—Morelli, in 1924, introduced a quantitative dental caries index based on decayed and filled teeth.¹² The Bodecker Index, introduced in 1931, was a measure of new points of entry of dental caries.¹² About 1938 Klein, Palmer and Knutson proposed the DMF index.¹⁴ This index is a measure of caries experience of the permanent teeth, where (D) is the total number of permanent teeth which are decayed, (M) the total number of permanent teeth missing because of decay, and (F) the total number of permanent teeth filled for reasons of decay. A permanent tooth which shows both filling and decay is generally classified as decayed (D).

The DMF index can be used qualitatively (the number or percentage of a population having one or more DMF teeth) or quantitatively (the number of DMF teeth). This index may be used as an individual score or as a mean score for a

population. In the latter instance, the total number of DMF teeth is the numerator and the total number of individuals examined is the denominator. The DMF index can also be applied to tooth surfaces (DMF[S]). Each filled or decayed permanent tooth surface is then scored as one, and some arbitrary score is pre-selected for each permanent tooth missing for reason of decay. The DMF tooth score is generally used to assess lifetime experience and prevalence scores (the amount of disease current at a specified time). The DMFS score is generally, but not necessarily, used to measure the amount of new disease occurring over a specified time interval.

Indices for measuring total dental caries experience were made available in 1944 with the introduction of Gruebbel's index for measuring deciduous tooth caries.¹⁵ When used as a def index, (d) signifies decayed, (e) indicated for extraction, and (f) filled deciduous teeth. All decayed teeth (in effect [d] and [e]) may be grouped under one designation (d) in which case the deciduous index becomes the df index. On occasion the letter (e) of the def index may signify deciduous teeth which have been prematurely extracted because of decay. In that case the decision as to premature extraction rests on arbitrarily established 'normal' eruption and exfoliation times.¹⁶

Malocclusion.—About the turn of the century Angle offered a diagnostic classification for malocclusion.¹⁷ This yields certain epidemiological data. Other malocclusion indices are also reliable and practical for epidemiological studies,¹⁷ but no simple index has so far been exclusively accepted for this purpose.

Periodontic Disease.—Though interest in periodontic disease epidemiology dates to the early part of the century, the first real periodontic index was not introduced until 1949. This is the PMA index of Massler and Schour. Its application is limited to measurement of gingivitis alone, and thus has a very limited use.¹⁸

Russell's periodontic index¹⁹ was proposed in 1956 and has since been widely accepted. This index is based on the de-

gree of severity of periodontic disease associated with each tooth. The scores are: 0 (no overt inflammation or loss of function); 1 (mild gingivitis in the free gingiva, but not circumscribing the tooth); 2 (gingivitis with inflammation circumscribing the tooth, but no apparent break in epithelial attachment); 4 (based on radiographic bone finding, but not used in field studies); 6 (gingivitis with epithelial attachment broken, pocket formation, but no loss of function, movement or drift); and 8 (advanced destruction with loss of function and possibly looseness, drifting, and dullness to percussion). The individual's index is obtained by dividing the sum of his scores by the number of teeth involved. The population index is obtained by dividing the sum of the individual indices by the number of people in the sample.

Other periodontic indices have since been developed, including that of Ramfjord.²⁰ A further addition is the Oral Hygiene Index, described as "a simple quantitative expression of oral cleanliness, based on clearly defined criteria which reduce examiner variation to a minimum. . . ."²¹ This index takes into account the amount of debris and calculus present in the mouth.

International Methodology.—A recent and significant advance is the establishment of an international dental epidemiological methodology by the World Health Organization.⁷ This methodology provides for the rubric classification of all dental and oral diseases within the International Classification of Diseases.⁸ This information will help to clarify the relation of dental and oral diseases to systemic disease and in total health. It further permits the accumulation of universally standardized dental disease data. Detailed portrayal of the world-wide distribution and inter-population variations of dental diseases will, in turn, facilitate their control and prevention.

The WHO methodology offers three levels of survey depending on the purpose of the investigation.⁷ The type A survey is quick and simple, requiring only a tongue blade, plastic ruler and good light. It is suitable for initial appraisal of the dental health of a population, for locating

high and low areas of attack and for public health program planning and evaluation. Only the severest type of lesion present at the time of examination is recorded. For example, dental caries is scored in terms of the most advanced of the following levels of pathology: none, pit or fissure, posterior interproximal, upper anterior interproximal, labial, or lower anterior interproximal caries. Type B survey is suitable for evaluation of all aspects of dental public health programs and for national periodical dental health statistics. Type C survey can be used for research purposes.

GEOGRAPHIC PATHOLOGY

Recent attention has focused on the history and geography of dental disease. Its potential for the elucidation of dental disease was proposed by Marshall²² in 1940 and illustrated by Schmidt²³ in 1949. May²⁴ has defined it as "the study of when and where a given disease was first observed, and what its incidence was, tracing it all over the world and examining the social, physical and non-physical factors responsible for it."

A more detailed discussion of geographic pathology and its use in dentistry has been reported elsewhere.^{4,5} Grainger³ regards the geographic array of data as a principal source of epidemiological insight. McPhail⁴ has proposed a method for the graphic portrayal of dental disease data on a global scale. Geographic array has been used to demonstrate a relation between dental caries and oral hygiene,²⁵ socio-economic status,²⁶ dietary habits,²⁷ physical nature of the area,²⁸ proximity to coastal areas,²⁹ fluoride level of potable water supplies,³⁰ nutrition,³¹ and sex differences.³² Epidemiological data have disclosed intra- and inter-population variations in the prevalence of periodontic disease,^{33,34} notably the high and low attack areas of this disease. Geographic pathology has helped to uncover a major causative factor of malignant lymphoma in African children.³⁵ Such studies not only help to elucidate dental disease processes; they also indicate likely areas for further research.

SUMMARY

The science of epidemiology dates back to the ancient civilizations of man. It originated from his interest in epidemics and his search for an explanation of these calamities. The principles and methods of epidemiological study, so effectively used in the elucidation of communicable diseases, are being successfully applied to the study of non-epidemic diseases including dental diseases. The complex and multifactorial nature of dental disease makes geographic pathology a particularly useful tool for the study of these diseases. New epidemiological methodologies will render this method of study even more effective for future understanding, control, and prevention of dental disease.

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Electron microscopic observations on myoepithelial cells and secretory nerves in rat salivary glands

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The authors describe the fine structure of myoepithelial cells and nerve fibres in the parotid and submandibular glands of the rat. They comment on the relationships of nerves to myoepithelial and secretory cells. Myoepithelial cells and their processes lie within the basement lamina of acini. They are separated by an interval of about 200Å from adjacent secretory cells. Desmosomes between the two cells are infrequent. Bundles of slender filaments approximately 50Å thick are present in myoepithelial cell bodies and processes. Unmyelinated axons are numerous in the connective tissue between acini. Axons containing granular vesicles approximate but do not penetrate the basement lamina overlying myoepithelial cells in mucous acini. In contrast, axons are present within serous acini. These axons are separated from the secretory cells by a gap of about 150Å. Agranular vesicles are present within many of these axons. These observations suggest that sympathetic nerves contact myoepithelial cells of mucous acini and that most axons in serous acini are parasympathetic. This does not, however, preclude possible dual innervation of the myoepithelial cells in mucous acini.

Les auteurs décrivent la structure des cellules myoépithéliales et des fibres nerveuses des glandes parotides et sous-maxillaires du rat. Ils commentent sur la relation des nerfs avec les cellules myoépithéliales et sécrétoires. Les cellules myoépithéliales et leurs apophyses se trouvent dans le chorion des grappes. Elles sont séparées des cellules sécrétoires adjacentes par un intervalle d'environ 200Å. Les desmosomes entre les deux cellules sont rares. Il existe des concentrations de minces filaments d'une épaisseur d'environ 50Å dans les cellules myoépithéliales et leurs apophyses. Les axones non-myoépithéliaux sont nombreux dans le tissu conjonctif entre les grappes. Les axones contenant des vésicules granulaires sont contiguës à la couche sous épidermique qui recouvre les cellules myoépithéliales dans les grappes muqueuses, mais sans y pénétrer. Par contre, il y a des axones dans les grappes séreuses. Ces axones sont séparés des cellules sécrétoires par un espace d'environ 150Å. Il existe des vésicules non-granulaires dans beaucoup de ces axones. Ces observations suggèrent que des nerfs sympathiques sont en contact avec les cellules myoépithéliales des grappes muqueuses et que la plupart des axones des grappes séreuses sont parasympathiques. Ceci n'empêche pas, toutefois, la possibilité d'une innervation double des cellules myoépithéliales dans les grappes muqueuses.

The mechanism whereby nerve impulses induce salivary gland secretions is poorly understood. We have studied the submandibular and parotid glands of the rat, using the electron microscope, and we report certain findings which aid in understanding the nervous control of salivary secretion and add to the relatively scanty literature about the morphology of autonomic nerve endings.

The influence of the autonomic system on salivary gland secretion was demonstrated by Ludwig¹ (1851) when he showed that stimulation of the lingual nerve in the dog would produce a flow of saliva. Langley² (1878) observed that sympathetic and parasympathetic stimulation evoked different types of saliva, and he suggested that the two divisions did not supply the same cells within the glands.

Krause³ (1895) described supposedly contractile cells at the periphery of acini in the parotid gland of the cat. It now seems probable that these myoepithelial cells can contract and express secretion from acini.⁴⁻⁶ One would therefore expect the gland secretory nerves to innervate these cells. Although this has not been proven so far, Tamarin⁷ has observed nerves that approach to within 0.1μ of myoepithelial cells in the rat submandibular gland. Moreover, nerve-myoeplithelial and nerve-glandular contacts have recently been described in the lacrimal gland of the sheep.⁸

PROCEDURES

Tissue was obtained from 12 Long-Evans male rats weighing 150-200 Gm. While an animal was anaesthetized with intraperitoneal sodium pentobarbital, we opened the neck through a midline incision and dissected out the parotid and submandibular glands of one side. Under a dissecting microscope, cubes approximately 1 mm. in size were atraumatically sliced from the glands. The cubes were fixed for two hours in 1 percent osmium tetroxide, dehydrated, and embedded in Maraglas. Thin sections were cut with a Porter-Blum MT2 ultramicrotome, stained with lead hydroxide, and examined using a Philips EM200 electron microscope. Thicker (1μ approximately) sections for

light microscopy were stained with 1 percent toluidine blue in borax.

RESULTS

Portions of mucous (Figures 1, 3) and serous (Figures 5, 9, 10, 11) acini are visible in a number of the illustrations. A feature of the secretory cell in both types of acinus is the abundant endoplasmic reticulum, arranged for the most part in parallel cisternae liberally studded with ribosomes.

Myoepithelial cells are found within the basement lamina at the periphery of the acini. Each cell consists of a cell body (Figures 1-3) and a number of slender processes (Figures 4, 5, 7, 8) which radiate outwards from the cell body to encompass the acinus. Since the myoepithelial cell moulds itself to the contour of the acinus, the cell body is frequently narrow and even crescentic in profile, and the nucleus is somewhat flattened. The cytoplasmic organelles are relatively sparse in comparison with those of the adjacent acinar cells (Figure 1), but a number of typical mitochondria, a small Golgi complex, and a few distended cisternae of endoplasmic reticulum are frequently visible. Ribosomes stud some of the reticulum tubules and are present throughout the cytoplasm in small clusters (Figure 3). A number of clear vesicles, 500-600 Å in diameter, are commonly arranged along the inner aspect of the cell membrane where it abuts the basement lamina (Figure 4). A striking feature of the cytoplasm is the presence of fine filaments, approximately 50 Å thick (Figure 3). Most of these filaments are grouped into bundles lying close to the adjacent acinar cell. The filaments approach the inner aspect of the myoepithelial cell membrane where they terminate (Figure 3).

Several processes of myoepithelial cells (Figures 4, 5, 7, 8) are generally visible in a section through an acinus. Each process invaginates the base of an acinar cell and dovetails with the cytoplasm so intimately that the smooth curvature of the acinar profile is not disturbed. In cross section, the shape of a process varies from flattened to tall and slender. The cyto-

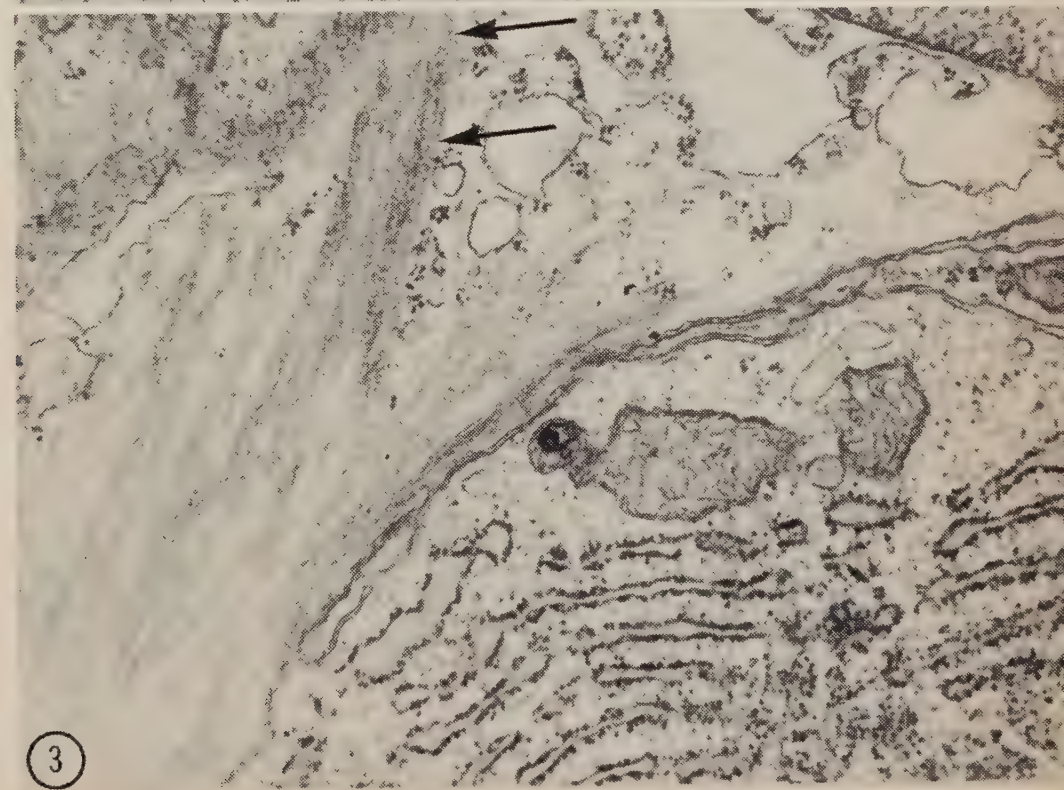
FIGURE 1 Tangential section through a myoepithelial cell body and adjacent mucous acinar cells in the rat submandibular gland illustrates the fine structure of the two types of cell. In the myoepithelial cell, the nucleus (N) is prominent and the origins of three processes (P) of the cell body are visible. Bundles of filaments can be seen in the cytoplasm (arrows). x 11,000.



FIGURE 2 Portions of a myoepithelial cell and an adjacent serous acinar cell from the parotid gland. Filaments are visible in the cytoplasm of both cells (arrows). A small portion of the nucleus (N) of the myoepithelial cell can be seen. x 50,000.



FIGURE 3 A portion of the cell body of a myoepithelial cell between two mucous secretory cells. Filaments within the cytoplasm of the myoepithelial cell terminate at the cell membrane (arrows). x 30,000.



plasm resembles that of the cell body, with an occasional mitochondrion contrasted against the relatively electronlucent background, and a number of vesicles lying near the inner aspect of the cell membrane at the base of the process. A bundle of filaments is invariably present (Figures 4, 5). The apposed plasma membranes of myoepithelial and acinar cells are separated by an interval about 200 Å. Specialized regions of cell contact, such as desmosomes, are present (Figure 5) but sparse. The acinar cell membrane forms a number of shallow loops and folds, but these convolutions are not paralleled by the adjacent membrane of the myoepithelial cell (Figure 4).

The connective tissue between acini consists largely of collagen fibrils and elastin, and contains blood vessels and nerves. Small bundles of unmyelinated nerves are numerous in both submandibular and parotid glands, and these have the typical structure illustrated in Figure 6. Each slender axon, bounded by its axolemma, partially or totally invaginates the cytoplasm of the enveloping Schwann cell.

The relationship between nerves and acini in the submandibular gland differs in some respects from that in the parotid. In both, small nerve bundles and occasional naked axons are frequently seen close to the edge of an acinus, separated by the basement lamina from a myoepithelial cell. In the submandibular gland, we observe approximation between axon and acinus, with fusion of their basement laminae (Figure 7). Vesicles up to 800 Å in diameter are present in many of these axons, and the majority have an electron-dense region at their centre (Figures 7, 8). Occasionally one sees a line of vesicles directed toward an apparent breach in the axolemma where it lies closest to the acinus (Figure 8), but there are no granular vesicles outside the axoplasm. There are no nerves within mucous acini.

In serous acini, in contrast, nerves are present within the basement lamina (Figures 9, 10). Naked axons lie between secretory cells, with an interval of approximately 150 Å separating the apposed membranes of axon and acinar cell (Figure 10). Vesicles are usually present in these axons. In most, the vesicles are

agranular, but dense-cored vesicles are occasionally present (Figure 9).

Fine filaments are observed in the cytoplasm of serous cells (Figures 2, 11). They are approximately 50 Å thick and do not appear to have any specific orientation. They resemble the fine tonofibrils associated with desmosomes, and desmosomes are prominent between the serous cells (Figure 11).

DISCUSSION

Heidenhain⁹ has disputed Langley's² opinion that the two divisions of the autonomic nervous system innervate different cells within the salivary glands. He⁹ suggested that cells receive dual innervation, their secretion being controlled by a balance of mutually antagonistic actions. Previous electron microscopic studies^{7,10,11} have demonstrated nerves in close proximity to acinar and myoepithelial cells; but dual innervation has not been confirmed, nor has the actual manner in which the nerves effect a secretory response been determined.

It is logical to anticipate innervation of the myoepithelial cells by the secretory nerves. These cells are morphologically well adapted for expressing secretion from acini. Moreover, the presence of fine intracytoplasmic filaments, which resemble those found in smooth muscle cells,⁷ adds to the likelihood that myoepithelial cells can contract. Tamarin⁷ noted axons as close as 0.1μ to the myoepithelial cells, and suggested that a transmitter substance might diffuse across this interval. A similar diffusive mechanism has been suggested in the innervation of smooth muscle.¹² We observed actual fusion of the basement laminae of axons and myoepithelial cells of mucous acini. We also noted many instances of the two being separated by a slender gap, but could not determine whether this signified a section that had passed close to a region of actual contact. The two types of junction could coexist, but fusion of basement laminae would presumably increase the efficiency of transmission by limiting diffusion of the transmitter substance.

Acetylcholine is known to be the chemical transmitter at parasympathetic post-

FIGURE 4 Transversely sectioned process of a myoepithelial cell with a prominent bundle of filaments and vesicles arranged along the inner aspect of the cell membrane at the base of the process. The membrane relationships between the myoepithelial cell and the adjacent acinar cells are well demonstrated. x 40,000.

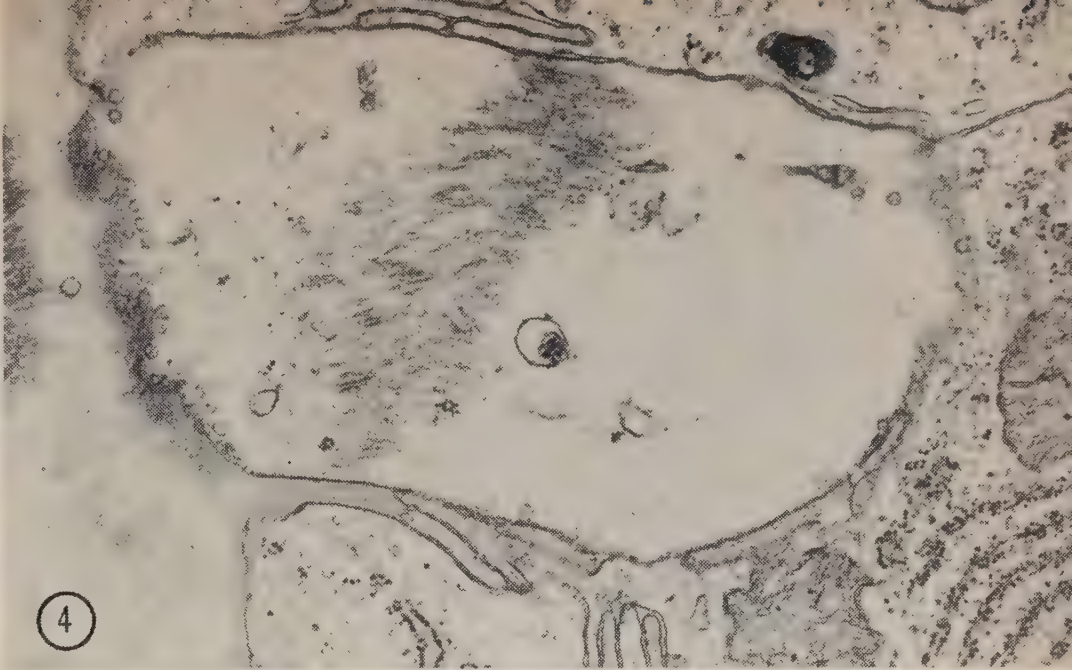


FIGURE 5 Elongated appearance of an obliquely sectioned process of a myoepithelial cell in a serous acinus. Filaments are visible within the cytoplasm, and a solitary desmosome between the process and adjacent acinar cell membranes is arrowed. x 45,000.

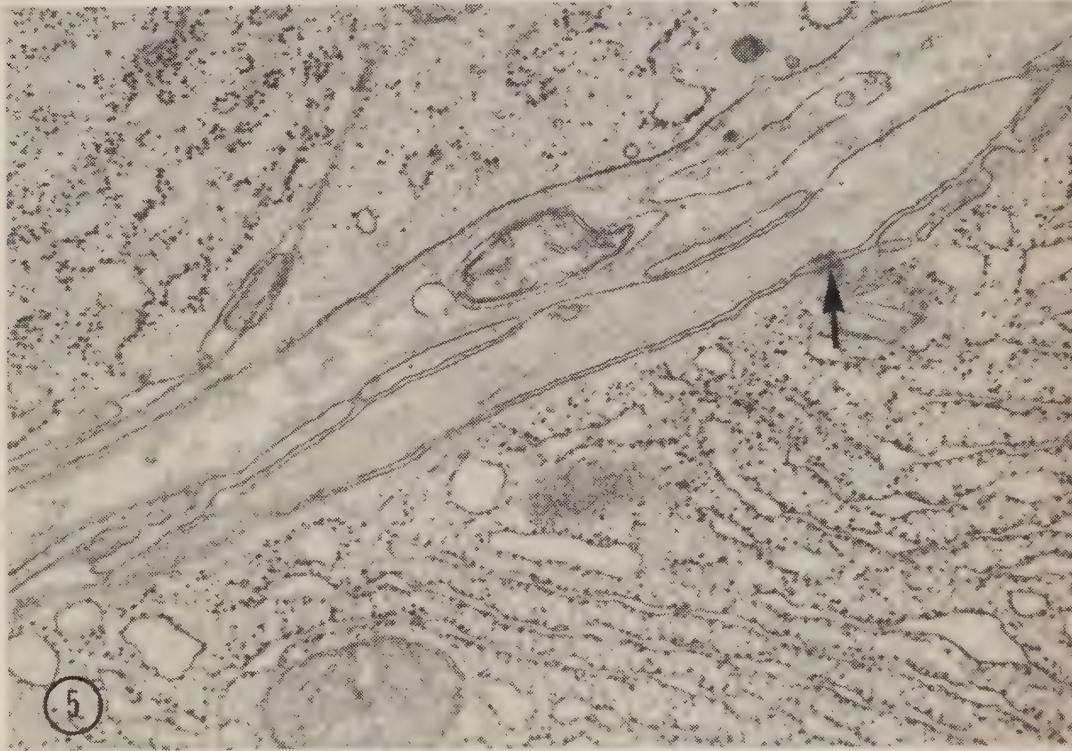
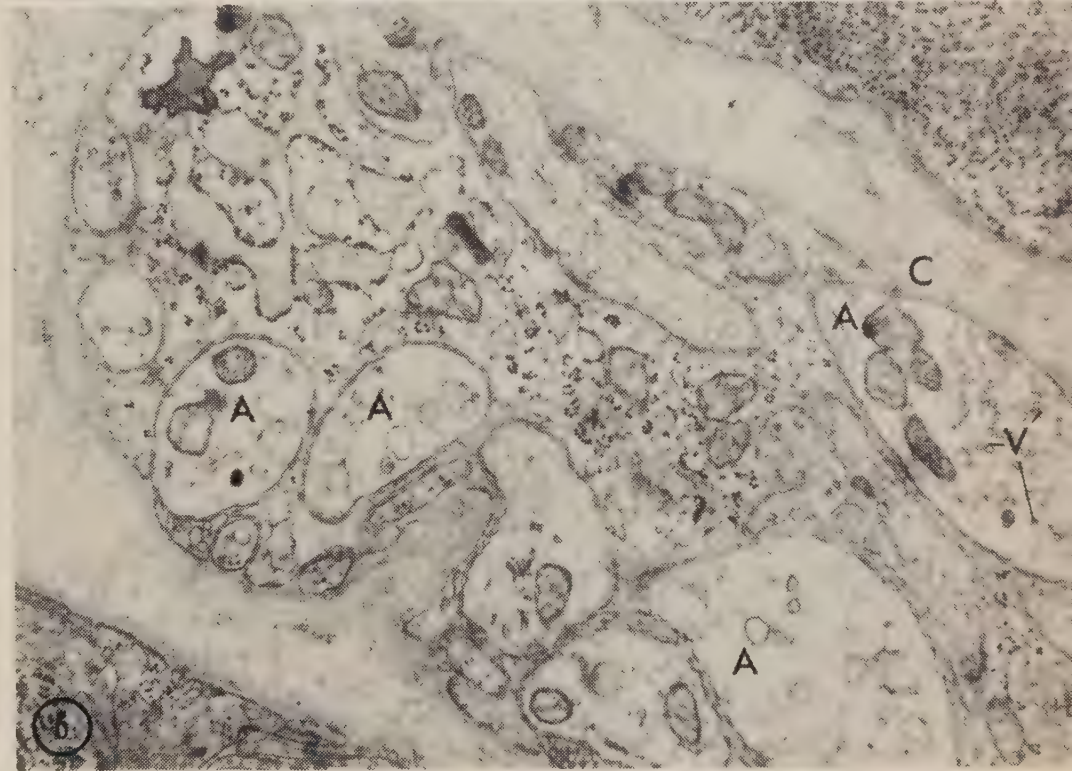


FIGURE 6 Unmyelinated nerve bundle among collagen fibrils (C) between two acini in the parotid gland. A number of axons (A) are visible in cross section, partially or totally enveloped by the cytoplasm of the Schwann cell (S). Vesicles (V) are visible in at least one of the axons. x 23,000.



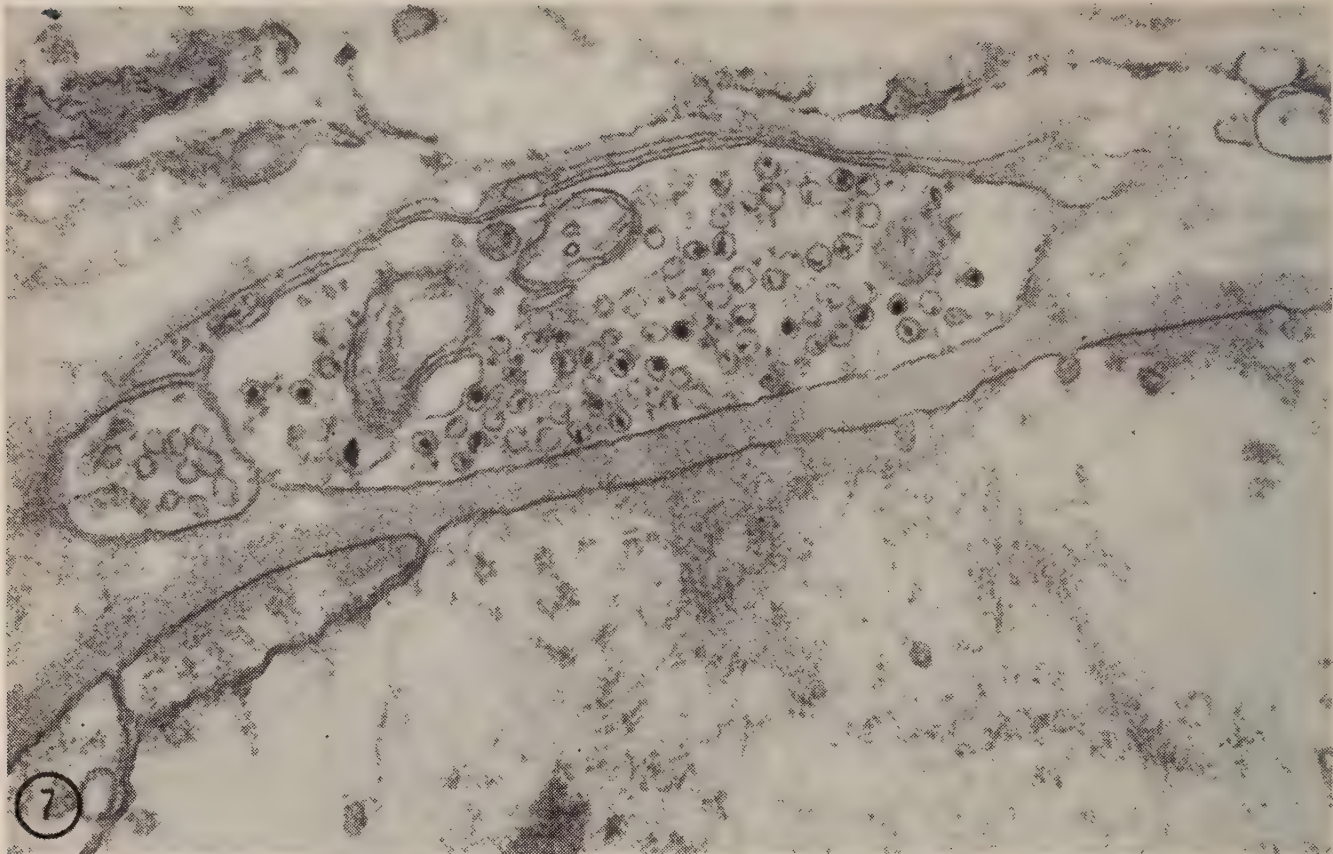


FIGURE 7 An axon containing granular vesicles lies in contact with the basement lamina of a myoepithelial cell in the submandibular gland. x 55,000.

FIGURE 8 A narrow interval separates a nerve bundle from the base of a myoepithelial cell in the submandibular gland. Granular vesicles within an axon are clustered near a possible breach in the axolemma (arrow). Filaments and vesicles are visible in the myoepithelial cell. x 52,000.

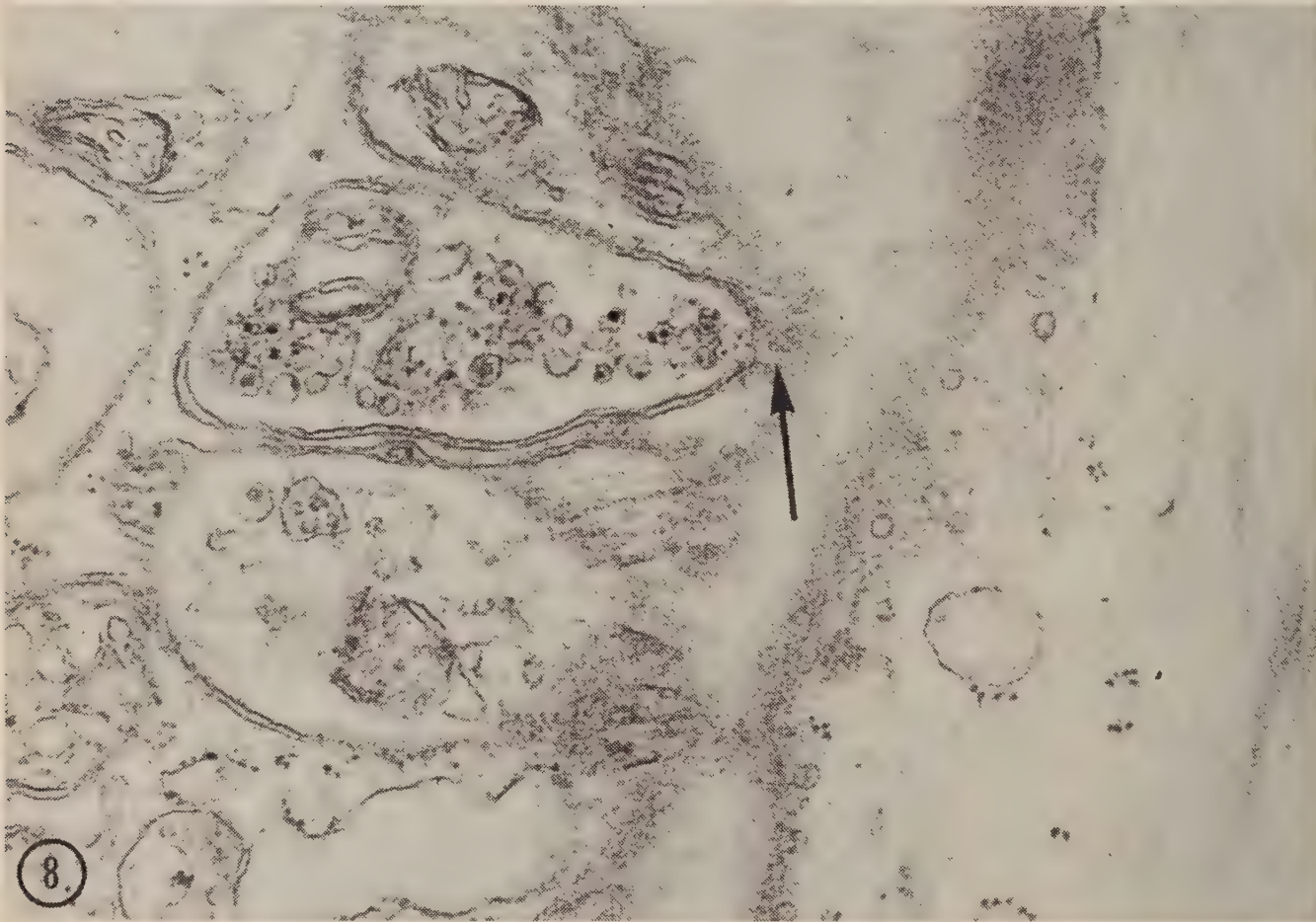


FIGURE 9 Slender axons (arrows) containing granular and agranular vesicles lie between the apposed membranes of secretory cells in parotid acini. x 29,000.



FIGURE 10 An axon containing agranular vesicles is shown within a serous acinus in the parotid. The two are separated by an interval of approximately 150 Å (arrows). x 45,000.

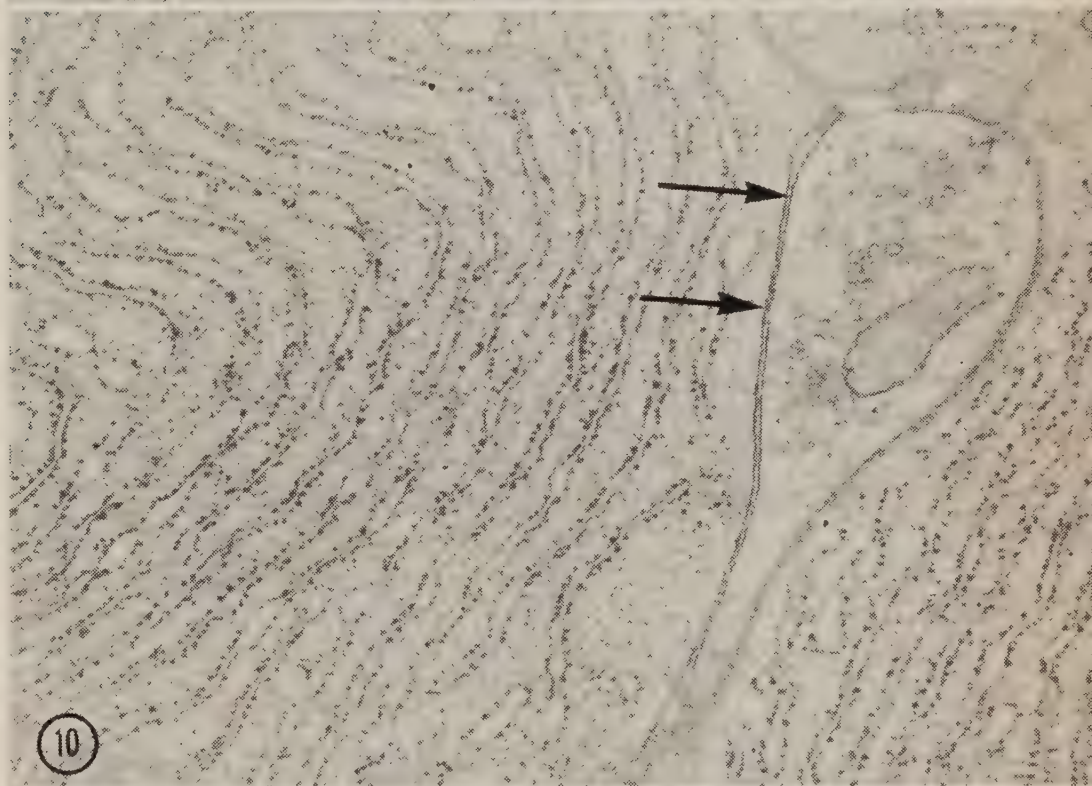
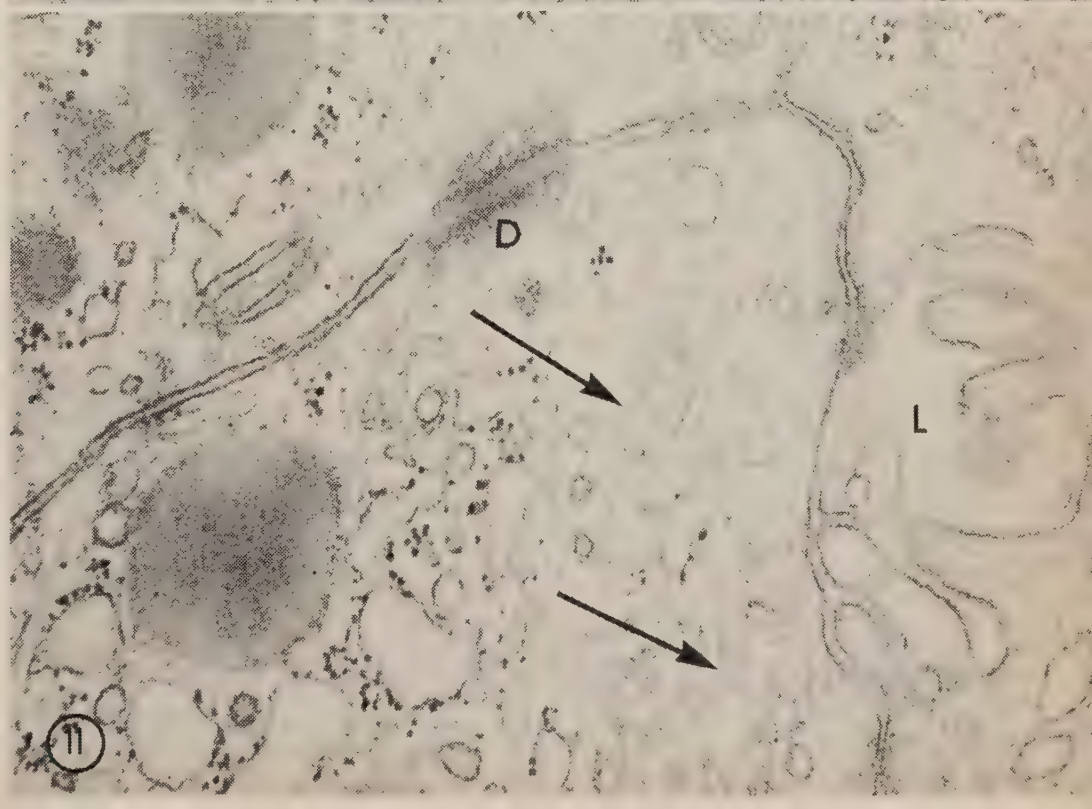


FIGURE 11 Desmosomes (D) and fine cytoplasmic filaments (arrows) are shown in the apical regions of cells of a serous acinus. The lumen (L) of the acinus is visible. x 75,000.



ganglionic junctions, while norepinephrine acts similarly in the sympathetic system.¹⁰ There is good evidence that both substances are stored in vesicles in the terminal axons — acetylcholine probably in a highly concentrated ionic form, and norepinephrine as a readily dissociable salt complex.¹⁰ At the myoneural junctions of skeletal muscle, where acetylcholine is the transmitter substance, the vesicles are granular.¹³ In chromaffin tissue, vesicles have an electron-dense core¹⁴ and, according to Richardson,¹⁵ axons containing granular vesicles are adrenergic. Our own observations on the rat salivary glands therefore indicate that adrenergic nerves make contact with the myoepithelial cells of mucous acini, and that the majority of axons within serous acini are parasympathetic. These observations do not exclude the possibility of dual innervation of myoepithelial cells in mucous acini, nor have they established the type of innervation of these cells in serous acini. They further indicate that, while the majority of nerves within serous acini are parasympathetic, adrenergic axons are also present.

The presence of nerves within serous acini has been noted previously.^{11,16,17} The existence of intimate contacts between axon and gland cell raises the possibility of junctional transmission between the two. We consider it unlikely that nerves which penetrate deeply into acini are merely pursuing a somewhat tortuous route to the superficial myoepithelial cells. Although no regions of increased density have been observed on the apposed cell membranes, the gap between them is approximately 150 Å which is similar to that of synaptic clefts in other locations.¹⁸

The possibility of direct functional communication between axon and gland cell raises the question of the effect a transmitter substance may have on a secretory cell. Normally such a substance acts by producing a localized region of increased ionic permeability in the cell membrane of the effector.¹⁰ Contraction ensues in skeletal muscle when the threshold of an action potential is

reached. It is difficult to perceive the significance of such a change on a gland cell, though the presence of cytoplasmic filaments offers scope for hypothesis. Increased permeability of the cell membrane might facilitate the rapid influx of a chemical substance to the cell cytoplasm. Current information is too meagre, however, to permit more than vague speculation.

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**Public
health
and
the
evolution
of
dental
practice**



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Public health, according to the 1964 Royal Commission on Health Services, encompasses "any health problem that involves a sufficient number of individuals to become a public problem and for the adequate solution of which public action is necessary or desirable."¹ This statement sets forth the public health objectives at official policy making levels in Canada.² Implicit in this view is the inclusion of any personal health services needed when a health problem is identified as a public problem. This has particular significance for dentistry because it expands the traditional concepts of dental public health.^{3,4}

The limited provision of personal medical and dental services has long been accepted as a public health responsibility. One significant result of the broadening of this principle has been the expanding area of common ground where private and public health practice share a mutual interest. Scientific advances have further reduced the demarcation which formerly differentiated the public health practitioner from his colleague in private practice.⁵ We have also learned to recognize some of the social, economic and cultural factors that affect the health of communities.⁶ These influences are reflected by the population's level of social

and technical development and, more important, by the prevailing values of the people. They explain why so many psychologists, nutritionists, engineers, economists, sociologists, social workers, health educators, hospital administrators and housing officials serve the cause of public health along with members of the traditional health professions.^{7,8}

Public health has never been the exclusive domain of public health practitioners. Private physicians are equally concerned with research, health education, consultation, nutrition, sanitation, immunization, quarantine and other methods of disease control. The practising dentist has a long and honourable record in public health education, prevention and treatment in school, military, institutional and industrial dental health, in the dental health of war veterans and in fluoridation. His opportunities to serve community groups directly and through his patients have multiplied with the advance of scientific knowledge and public education and the evolution of social action, particularly since World War II.

Medical practice sometimes appears to be more conducive to public health than is the private practice of dentistry. Physicians admittedly protect the family and the community whenever they immunize individual patients. Here, the physician's major concern is the health of the whole community, but the key to the problem is the individual patient. The prevention and treatment of mental disturbance in individuals likewise contributes to family and community welfare. Apart from these examples, physicians and dentists have equal scope for safeguarding the family and the community through services rendered to the individual. Patients are more receptive to advice and suggestion when they receive treatment than at any other time. This is an ideal opportunity for skilled and tactful counselling.

Dental conditions are largely a product of cultural, dietary, nutritional, economic, genetic, geographic, educational, industrial and other environmental influences. Collectively, these constitute a frequent and often unrecognized challenge for dental practitioners and educators. Canadians derive their behaviour patterns

from many different cultures. Social and cultural factors determine whether or not an illness is regarded as a threat and what means are utilized to control it. Social and economic factors can be the direct cause of such an illness or may mitigate its effect. What may be perceived as an illness in one stratum of a society may be viewed differently in another.⁹ This may explain why less than a third of Canadians seek partial dental care on a regular basis. The reasons are as varied as the cultural and social mosaic of this country. But attitudes are not immutable. Working through individual patients, a dentist can modify family and community behaviour if his professional attitude and education are community-oriented.

All dentists exert some influence on their communities either through their professional practice or their extra-professional activities. Indeed, some practitioners become very closely identified with specific community interests. The principal interest of most dentists is, however, centered in the practice of their profession, and their influence on the community emanates chiefly from this source. The nature of that influence is largely governed by the dentist's perception of his role and by his resourcefulness.¹⁰ Much depends on the kind of inspiration he receives during undergraduate training. We may illustrate this by citing the experience of the visitor who inspected the construction site of King Solomon's temple. The visitor questioned each of three workmen about his work. The first explained that he was cutting stone blocks. The second one said that he was squaring up the blocks. But the third workman who was polishing a stone block replied, "I am helping to build a temple." He alone had a vision of the ultimate goal; he alone perceived the nature and importance of his relationship with other workers in seeking to attain that goal.

We have concentrated in the past on training scientifically and technically competent dentists. This must continue but it is not enough. To expand his potential for community service the dentist of the future must also be steeped in the humanistic pattern of the third temple

workman. The community responsibilities of the professional man are shaped by community expectations. He cannot survive happily or comfortably if he does not reasonably fulfil and even raise these expectations.

Social and economic developments since World War II have gradually eroded the privacy that formerly attached to the practice of medicine and of dentistry.¹¹ The simple private contract between the practitioner and his patient has been extensively superseded by arrangements in which a third party provides or administers the funds. Tax and other public money is financing more health facilities, more health care and more training of health personnel. There is greater public appreciation of health. People are learning about the value of social action to attain community health goals. The taxpayer feels the rising burden of health costs. He wants to know what he is getting for his money, what the provider of services is being paid, and what that provider offers in return. Government statistical services and public auditors give him the answers. As a consequence some of our time-honoured traditions and practices have been brought into question.

There is, moreover, a prevailing belief that any service which is widely recognized as a need, yet is only accessible to the few, should be made available to all through public action.¹² Dental services have been publicly identified in this category.¹ The future dentist must therefore be equipped to work harmoniously with whatever institutions may arise from such public action. He must be able to collaborate with associated professions to provide the best possible service to his community. He must appreciate the implication of his advice and services, not only to the patient under his immediate care, but for the patient's family and the community beyond.

The body of scientific knowledge applicable to community oral health is now too great to permit its total inclusion in the undergraduate dental curriculum. Its basic principles are shared by all health professions concerned with community health. Universities have therefore estab-

lished schools of public health where dentists and members of other professions may acquire the knowledge and skills applicable to community health. Above everything else, these schools foster a sense of teamwork.

Public health trained dentists, like other dentists with advanced training, augment the services of general practitioners. They also link our profession with members of other health professions in health departments and in the Canadian Public Health Association and its local branches. For the past two decades dentistry has been extending into public health and public health has been extending into dentistry. Each discipline has left its mark on the other and both have found common ground. Dentistry, in company with other health professions, will therefore continue to progress from patient-centered practice to community-centered practice. The speed and extent of this transformation will depend on corresponding changes in undergraduate and post-graduate education.

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The relationship between delayed physical maturity and malocclusion

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This preliminary analysis of cross-sectional data from 256 boys aged 10-16 indicates that late maturing boys have a higher proportion of malocclusion. Prior to puberty, the male orthodontic patient tends to be shorter, lighter and thinner than the average for his age. This finding could modify the timing of treatment in relation to growth spurts in boys.

Cette analyse préliminaire de données non sélectionnées, concernant des garçons de 10 à 16 ans, indiquent que les garçons qui mûrissent tard ont une proportion plus élevée de malocclusion. Avant la puberté, le patient orthodontique mâle a tendance à être plus petit, plus léger et plus mince que la moyenne des garçons de son âge. Cette découverte pourrait faire changer l'époque du traitement en relation avec celle de la croissance chez les garçons.

This preliminary report deals with the analysis of cross-sectional data from 256 boys aged 10 to 16 years who are part of the longitudinal growth study being carried out at the Burlington (Ontario) Orthodontic Research Centre.

The answers to two questions were sought: (1) Is there any relationship between maturational laggards and malocclusion? (2) Do adolescents requiring orthodontic treatment possess any characteristic morphological features?

Growth progress may be assessed by various criteria such as size, skeletal development, maturity status based on secondary sex characteristics, and dental

development. Generally, there is a low correlation between individual growth and these different indicators.¹⁻⁵ Latham⁶ and Acheson and Dupertuis,⁷ however, found a close relationship between sexual maturation and skeletal development.

In terms of growth and physique, Acheson and Dupertuis,⁷ Bayley,⁸ Binning,⁹ and Tanner¹⁰ have shown that (1) early maturers have more subcutaneous fat, broader hips, and more muscle than late developing boys; (2) linear individuals develop late; and (3) late maturers have longer legs.

Using skeletal age and Angle's classification as criteria of growth and ortho-

dontic status, Bambha and Van Natta² were unable to show that their late maturers had higher rates of malocclusion or more severe manifestations. However, Johnston et al¹¹ showed that subjects with the most retarded skeletal ages had more 'skeletal' malocclusions than simple dental or skeleto-dental malocclusions.

METHODS

The following information on each subject was recorded on punch cards for analysis:

1. Sexual Maturity: The development of penis, testes, and pubic hair was rated on a five point scale, a score of 1 representing the prepubertal state and 5 representing maturity.¹²

2. Size: Height, weight, and the derived Ponderal Index were plotted on a growth evaluation profile.¹³ Harpenden skin fold calipers were used to measure subcutaneous tissue thickness at three sites.

3. Occlusion: The Malocclusion Severity Estimate developed at the Burlington Orthodontic Research Centre was used. It is based on an intra-oral assessment of overbite, overjet, molar interrelationships, rotations, displacements, crowding, congenitally missing teeth, and crossbite relationships. Scoring is on a 10 point scale, the higher numbers indicating greater severity of the disability.

RESULTS

The total sample was divided into three categories: normal occlusion, mild malocclusion, and severe malocclusion requiring treatment.

The average maturity status of the three groups at ages 10 to 16 is shown in Table 1. The lower maturity rating of 13 year old subjects in the severe category reflects a relatively late onset of puberty. Normal subjects reach maturity stage 3.5 a year earlier (age 13) than boys with severe malocclusion.

The average stature of the three orthodontic categories at each age is presented in Table 2. Subjects with severe malocclusion are, on average, shorter than

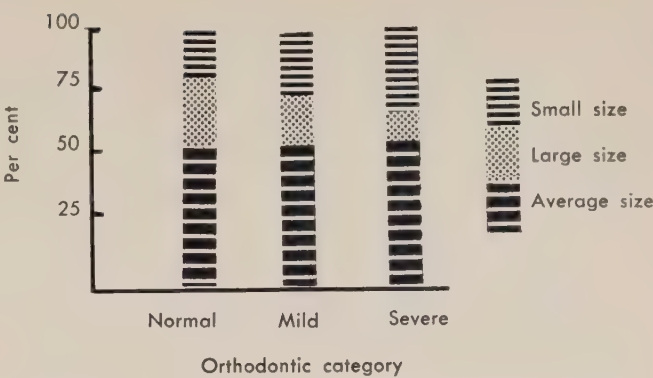


FIGURE 1 Size sub-groups in the three orthodontic categories.

those with normal occlusion until the age of 15. At each age, the Ponderal Index of the severe group is higher than that of the normal group, indicating lighter weight in relation to stature.

The total skin fold thickness measured on arm, back and abdomen gives a rough indication of the amount of subcutaneous fat. The average values are shown in Table 3. The amount of subcutaneous fat is lower in the severe category than in the normal group until the age of 15 at which time the relationship is reversed.

The size of each subject was compared to the mean for his chronological age using the standards of Bayer and Bayley.¹³ Subjects were allocated to three sub-groups: average, large and small. Figure 1 illustrates the proportions of these three sub-groups in each of the three orthodontic categories. Approximately half of the subjects in each category are of average size. On the other hand, smaller individuals predominate

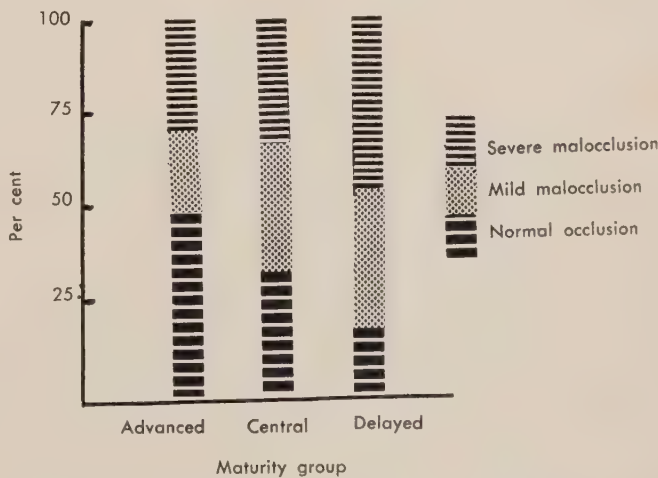


FIGURE 2 Orthodontic categories in the three maturity groups.

TABLE 1 Average maturity stages.

Orthodontic category	Age in years						
	10	11	12	13	14	15	16
	Maturity scores						
Normal	1.2	2.0	1.9	3.5	3.9	4.2	4.9
Mild	1.2	1.0	1.9	2.7	4.0	4.3	4.5
Severe	1.2	1.3	1.9	2.3	3.4	4.2	4.3
Total sample	1.2	1.3	1.9	2.6	3.8	4.2	4.7

TABLE 2 Average stature in cm.

Orthodontic category	Age in years						
	10	11	12	13	14	15	16
Normal	141.3	145.2	152.3	159.1	165.4	166.7	174.8
Mild	136.3	148.8	150.2	155.7	166.0	168.3	174.1
Severe	132.4	143.1	150.8	155.4	162.7	170.9	172.6
Total sample	137.2	144.6	151.2	156.6	164.8	168.6	173.9

TABLE 3 Average skin fold measurement in mm.

Orthodontic category	Age in years						
	10	11	12	13	14	15	16
Normal	18.5	47.5	32.7	27.4	28.7	20.6	23.8
Mild	16.8	22.0	21.9	25.9	30.2	26.5	28.8
Severe	15.4	18.6	27.2	26.8	27.4	24.2	24.7
Total sample	15.9	23.4	28.2	26.7	28.3	24.5	26.4

among boys with severe malocclusion where they constitute 31.5 per cent of the entire category.

Finally, the sample was subdivided into three sub-groups on the basis of reproductive maturity. The advanced group consists of the 30 boys with the earliest onset of puberty; the delayed group contains the 30 boys with the latest onset of puberty. The remainder form the central group. Figure 2 shows the orthodontic status of these three groups. Severe mal-

occlusion predominates in those with delayed puberty where it constitutes 46.6 per cent of the entire category.

DISCUSSION AND CONCLUSIONS

Results from this study cannot be compared with other studies because different criteria were used for evaluation.

As a group, boys with severe malocclusions differ from other subjects without

orthodontic problems in the following respects: they tend to be shorter until age 15, more linear in build, less padded with subcutaneous fat, and have a later onset of puberty. This limited study suggests that boys who attain puberty late are more likely to exhibit malocclusions. Late maturers form a higher proportion of male orthodontic patients. Prior to puberty the male orthodontic patient tends to be shorter, lighter and thinner than the average for his age.

The small sample size and the cross-sectional nature of the data make the findings suggestive rather than conclusive. Longitudinal data from the Burlington study will allow the analysis of individual patterns in the development of skeleton, jaws, dentition, reproductive system and physique. The larger series will permit a finer classification of type and degree of malocclusion.

The results of the study have implications in understanding the aetiology of malocclusion, in modifying treatment plans in relation to the timing of growth spurts, and in suggesting caution when data derived from the general population are applied to orthodontic patients.

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Oral moniliasis in the newborn

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Infantile oral moniliasis occurred in 5.8 per cent of 17,115 infants born in Salonika, Greece, between 1961 and 1965. Boys and girls were equally affected, as were children whose birth weight was either above or below 2,500 Gm. The incidence of the disease declined as sanitary conditions in the maternity clinic improved. There were also seasonal fluctuations which coincided with periods of reduced staff in the clinic.

5.8 pour cent des 17,115 nouveaux-nés de Salonique, Grèce, qui sont venus au monde entre 1961 et 1965, ont souffert de moniliase buccale infantile. Les garçons et les filles ont été également affectés, que leur poids de naissance ait été supérieur ou non à 2,500 gm. L'incidence de la maladie a diminué dans la mesure où les conditions sanitaires de la maternité se sont améliorées. Il y a eu également des fluctuations saisonnières, qui coïncidaient avec les périodes pendant lesquelles la clinique avait un personnel réduit.

Oral moniliasis in the newborn has world-wide interest, but there have been no previous statistical studies of this disease in Greece. The present report records the incidence of oral moniliasis in infants born in Salonika during the last few years.

REVIEW

Oral moniliasis (candidiasis) is caused by *Candida albicans*, a common saprophyte of the oral cavity. The disease oc-

curs mainly in infants, being less common in adults. Oral manifestation of monilial infection principally affects the tongue, and less frequently other areas of oral mucosa. The lesions are characterized by whitish, flaky membranes which leave red haemorrhagic surfaces upon their removal.¹⁻⁴

The widespread use of antibiotics has caused an increase of oral moniliasis cases.^{5,6} These agents destroy organisms that are antagonistic to candida and, consequently, favour the growth of monilia.^{1,3,4}

TABLE 1 Frequency of infantile oral moniliasis in newborn infants in Salonika, Greece, 1961-65.

Year	Children with:					
	Birth weight more than 2,500 Gm. N	Moniliasis		Birth weight less than 2,500 Gm. N	Moniliasis	
		N	%		N	%
1961	2,941	278	9.45	279	21	7.52
1962	3,017	249	8.25	343	21	6.12
1963	2,710	144	5.31	257	14	5.44
1964	3,496	107	3.06	334	14	4.18
1965	3,400	130	3.80	338	20	5.91
Total	15,564	908	5.83	1,551	90	5.80

The original lesions in the newborn develop after contact with an infected birth canal.^{1,4,7} The infection is transmitted to other newborn infants by contaminated utensils or hands of nurses.⁷

MATERIAL AND METHOD

Material for this study was derived from (1) direct observation of 6,896 infants born in the maternity clinic of the University of Salonika during 1964-65, and (2) the medical files of 10,213 infants born in the same clinic during 1961-63.

All cases, studied directly or through medical files, concerned newborn infants 1-6 days old. All children received a thorough clinical examination. Bacteriological smears or cultures could not be obtained from such a large number of infants.

The incidence of the disease was studied in relation to the subjects' sex and weight. Pertinent information concerning sex, weight and the existence of moniliasis was obtained from medical files. For purposes of this study the children were divided into two groups: those weighing over 2,500 Gm. and those weighing less.

FINDINGS AND DISCUSSION

During 1961-65 the frequency of the disease gradually decreased in all infants (Table 1). The overall incidence of moniliasis was 5.82 per cent (5.8 per cent for infants weighing less than 2,500 Gm. and 5.83 per cent for those weighing more than 2,500 Gm.). These percentages are higher than those reported by other investigators whose values ranged between 1.5-4.7 per cent.⁸

Birth weight is one of the main predisposing factors of moniliasis. Most investigators report a higher frequency in infants weighing less than 2,500 Gm.

It is noteworthy that during 1961 the disease occurred less often in infants weighing under 2,500 Gm. than in their heavier peers (Table 1). In subsequent years this difference gradually diminished because of a sharper decline in the prevalence of moniliasis in infants weighing over 2,500 Gm. The decrease of the

disease in both weight groups and the equalization of its prevalence is attributed to improved sanitary conditions in the maternity clinic.

Of further interest was the discovery of a seasonal variation in the frequency of moniliasis observed in both weight groups. These fluctuations coincided with vacation periods, higher frequencies occurring during Christmas, Easter and summer holidays. This phenomenon may be related to diminished clinical personnel during the holidays.

The disease did not seem to have any sex predominance.

CONCLUSIONS

1. Oral moniliasis occurred in 5.82 per cent of babies born between 1961 and 1965 in Salonika, Greece.

2. The incidence of infantile oral moniliasis diminished gradually during this period. This phenomenon is attributed to improved hygiene in the maternity clinic.

3. Moniliasis occurred with about equal frequency in infants whose birth weight was above or below 2,500 Gm.

4. The disease displayed seasonal fluctuations which coincided with reductions of maternity clinic personnel during holidays.

5. Both sexes were about equally affected by moniliasis.

This article is based on a report presented at the International Congress on Preventive Dentistry in Athens, Greece, July 1966.

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Differences between anilide and ester local anaesthetic agents

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Anilide local anaesthetic agents differ chemically from ester type compounds. This explains why the two groups have different allergic and toxic potentialities. Anilide agents rarely cause a sensitization, whereas contact sensitivity is liable to occur after repeated exposure to solutions containing ester compounds. Serum cholinesterase plays a prominent role in the detoxification of ester compounds. These agents can precipitate severe toxic reactions in patients who suffer from low plasma cholinesterase activity. Untoward reactions can be minimized by the following precautions: (1) avoiding intravascular injection by the use of an aspirating syringe; (2) injecting slowly; (3) using the smallest quantity and lowest concentration of the least toxic agent; and (4) substituting a different chemical agent when treating patients who have a known tendency to react to local anaesthetics.

Les agents d'anesthésie locale anilide diffèrent chimiquement des mélanges d'ester. Ceci explique pourquoi les deux groupes peuvent avoir des effets allergiques et toxiques différents. Les agents anilides ne provoquent que de rares réactions, alors qu'il se produit fréquemment une sensibilité de contact après des applications répétées de solutions contenant des mélanges d'ester. La cholinestérase du sérum joue un rôle important dans la détoxification des mélanges d'ester. Ces agents peuvent provoquer des réactions toxiques, graves chez les patients qui souffrent d'une sous-activité de la cholinestérase du plasma. Il est possible de minimiser les réactions fâcheuses en prenant les précautions suivantes: (1) en évitant l'injection intravasculaire, grâce à une seringue aspirante, (2) en injectant lentement, (3) en se servant de la plus petite quantité et de la concentration la plus faible possible de l'agent le moins toxique, et (4) en substituant un agent chimique différent, pour traiter les patients que l'on sait réagir aux anesthésiques locaux.

Today there are four commercially available local anaesthetic compounds classified as anilides or amide derivatives. They are lidocaine (Xylocaine, Octo-

caine), mepivacaine (Carbocaine), propitocaine (Prilocaine, Citanest) and pyrrocaine (Dynacaine). These compounds differ chemically from other local anaes-

thetic agents which are esters of aromatic acids. The latter are divided into (1) para-aminobenzoates, like procaine (Novocain) and butethamine (Monocaine); (2) meta-aminobenzoates, like metabutethamine (Unacaine); and (3) benzoates with no aromatic amino group, like meprylcaine (Oracaine).

The ester agents are closely related. They vary somewhat in their potency and duration of action, but produce very similar clinical manifestations. However, these compounds differ sufficiently from the anilide (non-ester) agents to produce their own distinct clinical phenomena.

ALLERGIC REACTIONS

Repeated exposure to local anaesthetic agents may cause allergic phenomena. The reaction may range in severity all the way from 'procaine dermatitis' to urticaria, to angioneurotic oedema, to fatal anaphylactic shock.

Patients who are sensitized to one ester agent may not tolerate other representatives of the ester family either. An anilide agent may then be substituted with reasonable confidence, although caution should always be observed with patients who have a known allergy.

TOXIC REACTIONS

Toxicity of ester agents manifests first as central nervous system stimulation and is reflected by restlessness, apprehension, tremors and convulsions. There may follow a period of depression which is also seen in overdosage with anilides. This manifests as drowsiness, incoherence and coma. Respiratory depression is a serious sequel and, should it occur, must be counteracted by maintenance of an airway, artificial respiration and by the administration of oxygen under pressure, when available.

Ester and anilide compounds are detoxified in the body by different systems. This is ordinarily unimportant but may be significant in patients who suffer from abnormalities of the enzyme systems.

Cholinesterase present in serum and in the liver mediates the detoxification of ester agents. These compounds are hydrolyzed, yielding an alcohol and benzoic acid. The products are partly excreted as such and partly further oxidized in the liver before being excreted. Cholinesterase also acts on myoneural blocking agents such as decamethonium bromide (Syncurine) and succinylcholine which paralyze by their ability to inhibit acetylcholine and thus interrupt communication within the nervous system.

Of significance is the fact that ester agents are detoxified in the blood serum by cholinesterase. Some compounds, like 2-chloroprocaine (Nesacaine), are rapidly and completely detoxified in the plasma. At the other extreme is tetracaine (Pontocaine) which is mainly detoxified in the liver. Nesacaine is therefore quite bland, whereas tetracaine is highly toxic. The rate of procaine detoxification by serum cholinesterase lies somewhere in between. Nesacaine is rated as four to five times less toxic, and tetracaine is considered 10 times more toxic than procaine.

Downs¹ described an interesting case in which serum cholinesterase activity was entirely absent. A 23 year old woman suffered a severe toxic reaction to procaine during a routine dental procedure. She had previously experienced two separate bouts of prolonged apnoea after administration of succinylcholine during general anaesthesia. Each episode persisted for about four hours and required respirator care. Tests made after the reaction to procaine showed a total lack of plasma cholinesterase activity in hydrolyzing procaine.

Downs advocates an evaluation of plasma cholinesterase activity in patients who have an idiosyncratic reaction to ester agents. The severity of this reaction depends on the degree of inhibition of cholinesterase activity and the amount of ester-type local anaesthetic that is injected. Low cholinesterase activity occurs as an inherited familial trait in one out of every 2,820 persons. The hydrolysis rate in this familial type of deficiency is lower than in patients with hydrolysis rates that have been diminished by pathological changes such as advanced liver disease.

Cholinesterase does not play an appreciable role in the detoxification of anilides. These compounds, moreover, are not inactivated in the plasma. They are hydrolyzed by enzymes present in the endoplasmic reticulum of liver cells. The products that result from such hydrolysis may be further oxidized and then excreted. The detoxification of anilides is therefore generally slower than that of esters. In fact, 3-11 per cent of lidocaine can be recovered from the urine intact. This may explain why an overdose of these drugs may provoke very serious consequences. Indeed, there were a significant number of fatalities following the early and excessive use of lidocaine for gynaecological and other purposes.

SUMMARY

Local anaesthetic solutions may provoke two kinds of untoward reactions: al-

lergic phenomena and toxic effects. Even minute quantities may cause allergic phenomena in sensitive individuals. When local anaesthetic agents are absorbed into the general circulation they may exert toxic effects. Such reactions depend on the rate of injection, the concentration of the agent in the bloodstream and the patient's ability to detoxify the material. Measures which minimize the risk of untoward reactions include (1) avoidance of intravascular injection by the use of an aspirating syringe; (2) slow injection; (3) use of the smallest quantity and lowest concentration of the least toxic agent; and (4) substitution of an agent with a different chemical structure when treating patients who have a known tendency to react to local anaesthetics.

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C.D.A. Objectives • "To cultivate and promote the art and science of dentistry in all its collateral branches and to maintain the honour and interests of the dental profession" — this is the first stated objective of the Canadian Dental Association. — Constitution and By-Laws of the Canadian Dental Association.

CDA Associate Membership • Many dentists who retire from active practice or move abroad do not renew their licence to practise dentistry in Canada. Discontinuation of their provincial licence results in an automatic lapse of membership in the Canadian Dental Association and the cessation of CDA membership privileges such as the subscription to the *Journal of the Canadian Dental Association*, the receipt of other association mailings, eligibility to participate in CDA-sponsored group insurance programs, and receipt of a CDA membership which entitles the holder to admission at many foreign dental meetings. If you are one of these dentists, you can continue to receive these benefits by applying for associate membership in the CDA at \$10 per year. To maintain your contact with organized dentistry in Canada, write for your application form to W. G. McIntosh, Secretary, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario.

Dentistry in France

The practice of dentistry in France as a 'chirurgien-dentiste' has, since 1892, been restricted to persons (a) of French nationality, (b) who hold the state diploma, and (c) who are registered with the Order of Dentists. The Order of Dentists is responsible for registration and discipline but it is not concerned at all with dental education which is controlled by the State through the common state diploma. Of the 14 dental schools, seven have hitherto been run privately (and their attendance fees have been considerably higher than at the state schools), but all will become state schools attached to universities under a new law passed in 1966.

DENTAL EDUCATION

General education for all children commences compulsorily at six years of age. At 11 years they transfer to a 'lycée.' The school leaving age is fixed at 15 and those who continue at school after that age study for the 'baccalaureat,' taken at 18 years, which is the qualifying examination for university entrance. Only 2 per cent of all university students are state-subsidized.

For very many years, the broad lines of the dental curriculum have been laid down in state decrees. A new law in 1967 modified and extended the curriculum and defined it with great precision. Every subject is listed and the number of hours' study for each one is prescribed for each of the five years of the course. Some reduction has been made in the large amount of time formerly allocated for training in mechanical procedures and the hitherto scanty requirements for medical and biological sciences have been increased. The first year of the course is

devoted to basic sciences and is taken jointly by medical and dental students; otherwise the courses are entirely separate.

Some universities award a diploma in dentistry, but this is not recognized for registration or practice in France. It is normally taken only by foreigners.

Stomatologists are practitioners who possess a diploma in medicine together with either the diploma in dental surgery or a certificate of special studies (two years) in stomatology. They number about 1,200.

Specialization in dentistry is not encouraged. There are no rules laid down for it nor are there any special courses or diplomas or titles. However, there are about 40 practitioners in France who restrict their practices to orthodontics. A doctorate in dental science was recently instituted by a state decree. Two years' postgraduate study is necessary for this and it is designed more especially for university teachers and research workers.

ORGANIZATION OF THE DENTAL PROFESSION

At the end of 1967 there were 18,500 members of the profession — giving a dentist-population ratio of about 1:2,700. There were 1,150 new graduates in the year, and the net increase in strength of the profession was 700.

Independent private practice claims 15,500 dentists, the remainder being salaried practitioners employed in hospitals, social security clinics, the armed forces, or as assistants. Dental schools are being expanded in order to achieve a dentist-population ratio of 1:2,000.

Registration with the Order of Dentists, already referred to, is obligatory for all practitioners; so is membership of the Dentists National Pension Fund which provides pensions on retirement and receives no subsidy, being entirely self-supporting. A small supplementary state pension is also payable to practitioners who give treatment under the social security scheme.

Membership of the Confédération Nationale des Syndicats Dentaires is not obligatory. A dental syndicate (effectively,

a trade union) is established in each of the 99 départements (counties) and it is to this that the practitioner primarily owes his allegiance and pays his dues. In the département of Alsace, 300 dentists each pay 500 francs (about \$110) per year to the Syndicat. One hundred and ten francs (about \$24) is the registration fee which is passed on to the Order of Dentists, 220 francs (about \$48) is the fixed contribution to the National Confederation, and the remainder is for local activities. These, however, do not include any scientific meetings; another organization with an annual subscription of 30 francs (about \$6.50) is responsible for these.

The CNSD is governed by a Council of 33 — one elected annually by each 'Regional Group' of three departmental syndicates. From the Council is appointed a 'Bureau' or executive of 11 officers, each of whom is responsible for a particular activity, such as journal, dental health, education, insurance, legislation, and so on. Each officer has a secretary in the offices of the CNSD and receives a payment to provide for secretarial assistance at his home, out-of-pocket expenses and a contribution for loss of remunerative time.

The president is elected nationally each year and may be re-elected. M. Jean Jardiné is now in his seventh year as president. He devotes about one-third of his time to the work of the CNSD. M. Jacques Charon, the secretary, is the only officer holding a permanent appointment. He is engaged half-time with the CNSD and also maintains a private practice in Paris.

AUXILIARY PERSONNEL

According to M. Jardiné, there are no problems in France concerning dental technicians or dental assistants, but the CNSD does not consider "the time ... ripe yet for hygienists or dental auxiliaries." The CNSD considers it dangerous to delegate any of the dentist's responsibilities but, in fact, has appointed a small committee to examine the question of hygienists. After finding, as a result of a survey, that only one dentist in eight uses

a chairside assistant (as distinct from a receptionist), the CNSD recently drew up a training scheme for dental assistants in order to encourage greater and more effective use of them.

The average wage for a dental assistant in Paris is about 1,000 francs (about \$220) per month, and the average wage for a dental technician is about 1,700 francs (about \$370) per month.

DENTAL HEALTH PLANS

A limited scheme for dental treatment under health insurance was introduced in 1928-29, but the social services were completely re-cast and much extended in 1945. Ninety-eight per cent of the population are now eligible for dental treatment and a patient may go to any dentist who will accept him. When the treatment has been completed, the patient pays the dentist's fees and produces a form on which the dentist enters details of the treatment given. On presenting this form at the local social security office, the patient receives a reimbursement of 70 per cent of the cost of the treatment according to an approved scale, if the dentist is one who has signed the social security convention; in other cases the reimbursement is only 20 per cent. The fees for treatment given by stomatologists are a little higher than in the case of dentists.

The social security system was significantly modified by a law in 1967, because the government considered that the time had come to change a system which was specially evolved to deal with a post-war situation when the population was poor and the economy depressed. It was decided that patients should themselves now carry more of the responsibility for the maintenance of their health — a cost which is constantly rising with the increasing complexity and sophistication of medical care. Reimbursement to patients for dental treatment was therefore reduced from 85 per cent to 70 per cent and it is expected that the trend will be for more and more of the costs of treatment to be borne by patients.

Adapted by permission from a report in the *British Dental Journal*, Vol. 124, March 19, 1968.



L'histoire de la Fédération dentaire internationale

The Story of the Fédération Dentaire Internationale

It all began in the mind of a single man, Charles Godon, dean of the Ecole Dentaire de Paris, who held the view that dentistry should be an autonomous profession in the rest of the world as in the United States. He had the idea of forming an international dental federation which would have as its first aim the organization of regular dental congresses. Godon was the moving spirit behind a meeting held at the Ecole Dentaire on August 15, 1900 where a handful of dentists from Britain, France, Spain, Sweden and the United States launched the FDI.

From then on *The Story of the Fédération Dentaire Internationale* unfolds a narrative which tells of the struggles of a few men endowed with the gift of determination and endeavour. They were proud men, conscious of their rights, and with an unremitting ambition to see their profession progress in spite of daunting setbacks. That is why the FDI has not only endured, but has progressed inexorably through two major wars to stand today as a beacon for dentists throughout the world.

La FDI est la fille spirituelle de Charles Godon, doyen de l'école dentaire de Paris. Il était d'avis que la dentisterie devait être une profession autonome dans le reste du monde, comme aux Etats-Unis. C'est lui qui eut l'idée de fonder une fédération dentaire internationale, dont le premier but serait l'organisation de congrès dentaires périodiques. C'est à Godon que nous devons la réunion qui eut lieu à l'Ecole Dentaire, le 15 août 1900, au cours de laquelle quelques dentistes de Grande-Bretagne, France, Espagne, Suède et Etats-Unis établirent la FDI.

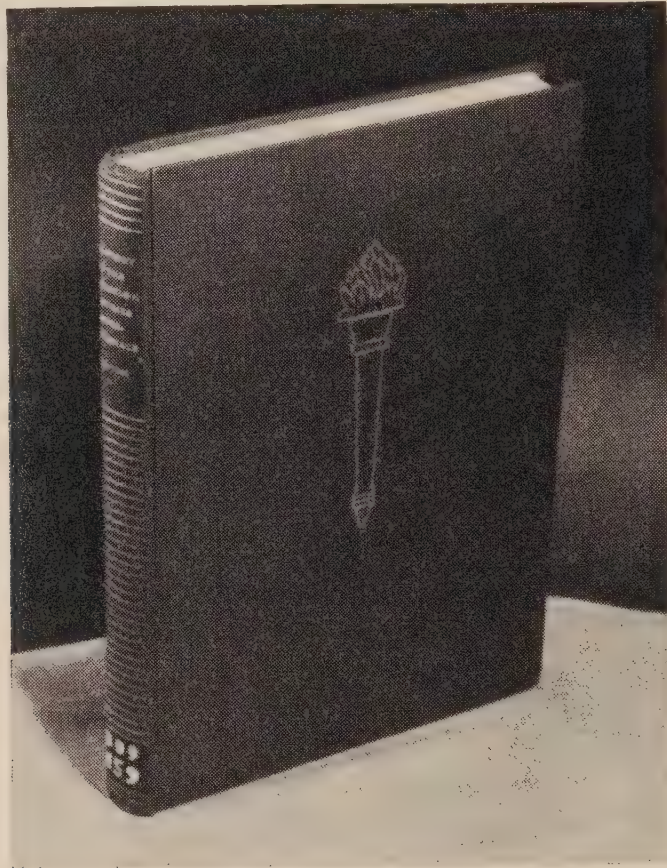
A partir de ce moment, l'histoire de la Fédération dentaire internationale est celle des luttes qu'engagèrent quelques hommes déterminés et entreprenants. C'étaient des hommes fiers, conscients de leurs droits et animés d'une ambition intransigeante pour faire progresser leur profession, en dépit d'échecs décourageants. C'est pourquoi la FDI ne s'est pas contentée de survivre mais a progressé inexorablement en dépit de deux guerres mondiales, pour devenir le phare de ralliement des dentistes du monde entier.

Rédigée par John Ennis, avec l'aide de notes générales préparées par Charles Nord, président d'honneur de la FDI, *L'histoire de la FDI*, publiée en 1967, a bien saisi l'esprit de la Fédération. Tous les dentistes éprouveront un sentiment de fierté lorsqu'ils liront ce récit fascinant, parce que l'histoire de la FDI est celle de la profession dentaire. Ses pages reflètent l'esprit de dévotion dont firent preuve

Written by John Ennis with the aid of comprehensive notes from Charles Nord, FDI president of honour, *The Story*, published in 1967, has captured the spirit of the Federation. Every dentist will feel a touch of pride when he reads this fascinating narrative because the history of the FDI is the history of the dental profession itself. Its pages reflect the spirit of devotion displayed by those who worked for an international organization which they regarded as a necessity for a profession dedicated to the health of the peoples of the world.

ceux qui travaillèrent pour établir une organisation internationale; ils la considéraient comme une nécessité pour une profession responsable de la santé mondiale.

L'histoire est divisée en 12 chapitres dont les titres évoquent le développement de la dentisterie en une profession internationale dans le domaine de la santé. L'un des premiers chapitres intitulé "Quel genre de formation" (1901) soulève la question de la formation professionnelle du dentiste: doit-elle être celle d'un médecin avec en plus, une spécialisation en



The Story is divided into 12 chapters whose titles evoke the development of dentistry as an organized international health profession. An early chapter, "What Kind of Education" (1901), asks whether the dentist's education is to be that of a medical man with dentistry added on, or whether it should be designed to meet his own requirements. The discussion of this topic leads to a chapter describing "The Break with Medicine" (1903-1909). This account is dominated by the thinking of Willoughby Dayton Miller—at that time probably the greatest living authority on dental science. "No Autocratic Spirit" (1910-1914) relates

dentisterie ou doit-elle être conçue en fonction de ses exigences propres? La discussion de ce sujet amène à un autre chapitre "La rupture avec la médecine" (1903-1909). Ce compte-rendu est dominé par la pensée de Willoughby Dayton Miller, probablement la plus grande autorité de l'époque sur la science dentaire. "Pas d'esprit autocrate" (1910-1914) raconte le développement de la santé publique dentaire et le traitement des enfants jusqu'à l'époque du sixième congrès dentaire international qui se termina à la déclaration de guerre, en août 1914. Le chapitre se termine par ces mots: "Pour beaucoup, ce fut un long au revoir.

the development of dental public health and treatment of children up to the 6th International Dental Congress in London which closed with the declaration of war in August 1914. The chapter ends with these words: "For many, it was a long goodbye. The delegates made their difficult journeys back to their native lands. Organizations with 'international' in their titles were to be, for years to come, out of fashion."

In "Picking up the Pieces" (1921-1925) Ennis traces postwar progress as the FDI gathered its shattered membership and re-established its organization with people like Aguilar, Brophy and Nord playing prominent parts. "Back to Internationalism" (1926-1931) records the period between the Philadelphia Congress in 1926 attended by 15,000 dentists and the Paris Congress in 1931. This was a time of rapid growth and improved communication, a period marked by development of the work of the FDI Commissions. These were the years when Georges and Henri Villain of France exerted a powerful influence. "Troubled Years" (1932-1938) chronicles the uneasy period that culminated in World War II. This chapter, which marks the administration of Charles Nord, also documents the public passions aroused by a proposal to use dogs for experimental endodontics.

"The Third Start" (1946-1951) and "The New Men" (1952-1962) bring us through the last war and up to the present. In the final chapter, "The Years Ahead," Ennis summarizes FDI philosophy in these words: "Behind the formation of the Fédération Dentaire Internationale in 1900 lay one firm idea: the development of dentistry to the point where the profession would provide a health service for everyone, rich and poor, of every nationality. Great strides towards this ideal have been made in the FDI's first 65 years. Much more remains to be done, and the FDI, a respected and increasingly powerful force in world dentistry, will continue its role of pointing the way..."

The Story of the FDI can be obtained from the Secretary General of the Fédération Dentaire Internationale, 64 Wimpole Street, London W.1, England. Price \$7 (US).

Les délégués retournèrent avec difficulté

dans leurs pays respectifs. Les organisations, dont la raison sociale contenait le mot 'international', furent pendant des années tout à fait démodées."

Dans "La réorganisation" (1921-1925), Ennis relate les progrès d'après-guerre. La FDI réunit ses membres dispersés et réétablit son organisation grâce au rôle éminent que jouèrent des gens comme Aguilar, Brophy et Nord. "Retour à l'internationalisme" (1926-1931) raconte l'histoire de la période qui s'écoula entre le congrès de Philadelphie, en 1926, auquel assistèrent 15,000 dentistes et le congrès de Paris, en 1931. Ce fut une époque d'essor rapide qui vit l'amélioration des communications, une période marquée par le développement de la tâche des commissions de la FDI. C'est au cours de ces années que les Français Georges et Henri Villain exercèrent une grande influence. "Les années troublées" (1932-1938) raconte la période difficile qui se termina par la deuxième guerre mondiale. Ce chapitre, qui couvre l'administration de Charles Nord, rapporte en détail les passions que suscita, parmi le public, l'usage de chiens pour des expériences endodontiques.

"Le troisième recommencement" et "Les hommes nouveaux" (1952-1966) nous amènent de la fin de la dernière guerre à la période actuelle. Dans son chapitre final "Les années à venir", Ennis résume la philosophie de la FDI en ces termes: "L'établissement de la Fédération dentaire internationale repose sur une idée solide, le développement de la dentisterie jusqu'à ce que la profession puisse fournir ses services à tous, qu'ils soient riches ou pauvres et à quelque nationalité qu'ils appartiennent. Au cours de ses premières 65 années d'existence, la FDI a fait de grand pas vers la réalisation de cet idéal. Il reste encore beaucoup à faire et la FDI, cette association respectée et de plus en plus puissante dans la dentisterie mondiale continuera à jouer son rôle en indiquant la direction dans laquelle il convient de s'engager..."

Vous pouvez obtenir *L'histoire de la FDI* (en anglais seulement) auprès du Secrétaire-général de la Fédération dentaire internationale, 64 Wimpole Street, Londres W.1, Angleterre, au prix de \$7 (Am.).

W. Stewart Ross

L'Association

Les brochures sur les tests d'aptitude 1969 sont prêtes

L'Association dentaire canadienne a publié de nouvelles brochures, en anglais et en français, qui exposent le programme de test d'aptitude dentaire 1969, pour les candidats à la première année d'études dans les facultés dentaires canadiennes. La brochure donne des renseignements sur les conditions d'entrée, le programme professionnel d'études, le programme TAD, les dates des tests, (10 ou 11 janvier, et 28 ou 29 mars 1969), la façon de faire application, les centres de tests, les rapports des tests et les honoraires. Le programme est placé sous la surveillance du conseil de l'enseignement de l'ADC. Les tests d'aptitude dentaire qui sont exigés ou recommandés par toutes les facultés dentaires canadiennes aident à évaluer les chances de succès d'un candidat aux études dentaires. Leurs résultats, ajoutés à tous les renseignements pertinents, servent à décider de l'admission d'un candidat à une faculté dentaire. Vous pouvez vous procurer les brochures TAD en écrivant à: Tests d'aptitude dentaire, Association dentaire canadienne, 234 St. George Street, Toronto 5, Ont.

Canada

Le Collège international installe de nouveaux fellows

Une assemblée de la section canadienne du Collège international des dentistes qui

s'est tenue à Vancouver, le 26 juin, a été l'occasion de l'installation de 15 nouveaux fellows. Ce sont: S. Wah Leung, E. E. Martin, D. H. Munro, Max Nacht et W. R. Upton, tous de Vancouver; L. E. English, Kamloops, C.B., Alec Gunning, Victoria; R. V. Blackmore et G. E. Decker, Edmonton; K. F. Pownall, C. E. Purdy et R. L. Twible, tous de Toronto; R. E. Jordan, London; D. B. Ward, Montréal et Paul Dionne, Joliette, Qué.

J. A. Fortier, Montréal, a été élu président de la section canadienne du CID; il remplace T. H. Johns, de Victoria. W. J. Riley, Winnipeg, a été nommé président-élu et Murray Purcell, Pembroke, Ont., vice-président. H. R. Skilling, a été nommé trésorier et E. A. White, secrétaire général. Ils sont l'un et l'autre de Toronto.

Ont été élus régents: G. R. Hallman, Vancouver, district 1; R. B. Haryett, Edmonton, district 2; J. P. Whyte, Swift Current, Sask., district 3; G. A. Brass, Winnipeg, district 4; J. A. Sherman, Toronto, district 5; C. A. E. McCabe, Ottawa, sous-régent, district 5; W. J. Johnston, Montréal, district 6; Conrad Godin, Trois-Rivières, Qué., sous-régent, district 6 et G. M. Dewis, Halifax, district 7. Le Brig. E. M. Wansbrough d'Ottawa a été élu éditeur.

Trois fellows honoraires au Collège royal

Deux dentistes et un médecin ont été nommés "fellows" honoraires à l'occasion de l'assemblée du Collège royal des dentistes du Canada, à Vancouver, le 29 juin. Ce sont les Drs W. J. Johnston, de Mont-

réal; J. H. Graham, secrétaire du Collège royal des médecins et chirurgiens du Canada, d'Ottawa et l'ancien secrétaire de l'ADC, Don W. Gullet, de Willowdale, Ont.

Le Dr C. R. Braaten, de Vancouver a reçu un fellow en pédodontie. Neuf autres dentistes sont devenus fellows, tel qu'annoncé à la page 327 dans le numéro du Journal de juin.

Le Dr R. L. Scott, de Brantford, a été élu président du Collège royal. Il succède au Dr C. H. M. Williams, de Toronto.

Le Dr Clifford Ames de Vancouver, a été nommé vice-président et le Dr J. E. Speck, de Toronto, garde son poste de secrétaire général trésorier.

Un congrès dentaire à Paris en novembre

Les dentistes canadiens ont été invités à participer au 41ème congrès des Journées Dentaires Internationales de Paris, du 25 novembre au 1er décembre. Des séances scientifiques auront lieu à la Maison de la Chimie.

Pour tous renseignements supplémentaires, écrire à M. Pierre Martin, Secrétariat Général des JDIP, 28 rue Saint-Dominique, Paris 7e, France.

Economie

Les dentistes de la Colombie britannique seront rémunérés pour les services dentaires rendus à l'hôpital

Des interventions chirurgicales médicalement nécessaires, faites par un dentiste à l'hôpital, seront considérées comme étant des services rendus par un médecin, aux termes de la loi sur les services médicaux de la Colombie britannique. C'est ce qu'a déclaré aux délégués, à l'occasion du congrès national de l'ADC, le 28 juin, à Vancouver, le secrétaire provincial de la CB, le Dr W. D. Black. Il leur a expliqué qu'un ordre-en-conseil provincial avait été passé à cet effet, le 10 juin, conformément à un amendement de la loi des soins médicaux au Canada. Ceci rendra possible la rémunération des dentistes pour les services assurés dans le

cadre de la participation de la Colombie britannique, au programme fédéral médical.

Les dentistes de la Colombie britannique refusent leurs services dans le cadre du bien-être social

Depuis le 1er juillet, les dentistes de la Colombie britannique ont refusé tout service dentaire, sauf les soins d'urgence aux patients inscrits au bien-être social du gouvernement provincial. Les dentistes reçoivent 57 pour cent de leur barème d'honoraires de 1966 lorsqu'ils traitent des indigents. Ils veulent recevoir 90 pour cent de leurs honoraires, comme c'est le cas pour les médecins dans le cadre de la version provinciale du programme national medicare, qui est entrée en vigueur le 1er juillet en Colombie britannique.

Fluoration

Charlottetown a fluoré son eau

Les adversaires de la fluoration ont essayé d'obtenir une injonction, ce qui a causé un certain délai, mais le 23 avril, Charlottetown a commencé à fluorer son eau, pour le bénéfice de ses 18,900 habitants.

La capitale de l'Île du Prince-Edouard est la première municipalité de la Province à adopter cette mesure sanitaire. Le Nouveau Brunswick est maintenant la seule province qui n'ait pas un programme de fluoration en cours.

Distinctions honorifiques

Le Dr **Don W. Gullett** de Willowdale, Ont., ancien secrétaire de l'Association dentaire canadienne a reçu la médaille de Service de l'ordre du Canada, le 28 juin. Cette distinction honorifique faisait partie des 23 annoncées par le Gouverneur général, M. Roland Michener. La médaille de service est décernée "sur la base du mérite, pour services rendus au Canada et à l'humanité en général."

The Association

Miss Kirker Named Secretary for Council of Education

Secretary W. G. McIntosh has announced the appointment of Miss Kay Kirker as secretary of the CDA Council on Education effective July 1. Miss Kirker joined the Canadian Dental Association May 1966 as director of the Aptitude Test Program. Prior to coming to the CDA Miss Kirker was secretary to the national commissioner of the Canadian Red Cross Society.

Canada and the Provinces

Royal College Modifies Stand on Initial Interim Exams

The following motion was passed by the Council of the Royal College of Dentists on June 29:

"Having received a new interpretation from legal counsel of 10 (3) of the Act, Council will consider applications to take the Initial Interim Examinations from those who had had acceptable graduate training, as of the date of the passing of the Act, March 18, 1965, but did not have certification, at the time of the passing of the Act, because of provincial regulations requiring a term of practice before certification was issued."

Candidates who wish to take advantage of this provision must submit applications to sit for this examination by December 31, 1968. The examination, to be held in

March 1969, will be similar to that set for preceding groups of special Initial Interim candidates.

Royal College Confers Three Honorary Fellowships

Two dentists and one physician received honorary fellowships at the Vancouver convocation of the Royal College of Dentists of Canada June 29. They are W. J. Johnston, Montreal; J. H. Graham, secretary of the Royal College of Physicians and Surgeons of Canada, Ottawa; and former CDA Secretary Don W. Gullett, Willowdale, Ont.

C. R. Braaten, Vancouver, received a fellowship in the division of paedodontics. Nine other dentists received fellowships as announced on p. 337 of the June issue of the Journal.

R. L. Scott, Brantford, was elected president of the Royal College. He succeeds C. H. M. Williams, Toronto. Clifford Ames, Vancouver, was named vice-president and J. E. Speck, Toronto, continues as registrar-secretary-treasurer.

New Dental Organizations and Companies Contribute to Education Fund

The Canadian Fund for Dental Education reports a 33 per cent increase in the number of dental organization and company contributors during the first six months of 1968.

The CFDE 1967 Annual Progress Report was published prior to receipt of donations from the following organizations and firms: Alberta Dental Association, l'Association Dentaire de la Province de Québec, l'Association des Techniciens Dentaires de la Province de Québec, Cen-

ennial Conference of the Toronto Alumni Chapter of Alpha Omega Fraternity, Charitable Foundation of the Alpha Omega House Association, College of Dental Surgeons of the Province of Quebec, 1968 dental graduates of Dalhousie University, Ladies' Auxiliary to the Hamilton Academy of Dentistry, Montreal Study Club of Dental Technicians Inc., Niagara Peninsula Dental Association, Regina and District Dental Society, Stratford and District Dental Society, Chayes Dental Instrument Corporation, Royal Trust Company and Weber Dental Manufacturing Company.

CFDE Annual Drive Opens Next Month

The Canadian Fund for Dental Education's annual drive begins next month to seek contributions from the nation's dentists. J. D. McLean, Halifax, chairman of CFDE's Board of Trustees, urges all dentists to make a CFDE contribution. Please mail cheques directly to the Canadian Fund for Dental Education, 234 St. George St., Toronto 5, Ont.

International Items

Paris Meeting Set for November

Canadian dentists have been invited to attend the 41st annual meeting of the Journées Dentaires Internationales in Paris, France, November 25 to December 1. Scientific sessions will be held in the Maison de la Chimie.

For further information, please write to M. Pierre Martin, Secrétariat Général des JDIP, 28 rue Saint-Dominique, Paris 7e, France.

Irish Dentists to Meet in Killarney in 1969

The site of the 1969 annual scientific meeting of the Irish Dental Association

will be the Great Southern Hotel, Killarney, County Kerry, Ireland, April 17-20. Canadian dentists who wish to attend should write to J. Ivers, general secretary, 29 Kenilworth Square, Dublin 6, Ireland.

Canadian Dental Schools

McGill U Promotes Drs. Rogers, Francis

M. A. Rogers and L. E. Francis have been appointed assistant deans of the Faculty of Dentistry, McGill University, Montreal, effective June 1.

Dr. Rogers will be responsible for undergraduate affairs. He received his DDS from McGill in 1940. After serving with the Canadian Dental Corps from 1941 to 1946, he taught part-time in the Department of Prosthodontics. Since 1957 Dr. Rogers has been full-time associate director of clinical facilities. Instrumental in establishing the Royal College of Dentists of Canada, he was elected an honorary member at its first convocation in 1966.

Dr. Francis will be responsible for developing a new research facility and for graduate education. He graduated in dentistry from McGill in 1949, and continued in a part-time capacity with the Department of Pharmacology from which he obtained his MSc in 1958. Since 1959 Dr. Francis has been full-time with the Faculty and is currently chairman of the Department of Dental Pharmacology and Therapeutics.

M. A. Rogers



L. E. Francis



Official Opening of UWO Dental Building Set for Oct. 25

A distinguished Canadian dentist now resident in California will deliver a public inaugural lecture October 24, the day preceding the official opening of the new Dental Sciences Building at the University of Western Ontario, London. Gordon Nikiforuk of the School of Dentistry, University of California, Los Angeles, will speak at 8.00 p.m. in Middlesex College Theatre.

The official opening ceremony begins at 10.30 a.m., October 25, in the Dental Sciences Building. Dean R. G. Ellis of the Faculty of Dentistry, University of Toronto, will deliver a convocation address in Alumni Hall at 3.00 p.m. Dr. Ellis will also receive the degree of Doctor of Laws (honoris causa).

Western will also play host to several other associated meetings; on October 23-24 to the Association of Canadian Faculties of Dentistry and the Fifth Biennial Conference on Dental Research, and on October 22 to a meeting of dental librarians.

Dental Organizations

Paedodontic Academy Invites New Members

Any dentist who has completed two consecutive years of graduate training in paedodontics and wishes to join the Canadian Academy of Paedodontics is invited to request application forms from Norman Levine, secretary-treasurer, 200 St. Clair Ave. W., Toronto 7, Ont.

Essex County Dentists Elect Dr. Courey

P. J. Courey was recently elected president of the Essex County Dental Society. He succeeds E. H. Mazak. Other officers

are Joseph Emon, vice-president; M. A. Hakem, treasurer; and A. H. Kupsov, secretary.

Dr. Mendel is President of Montreal Alpha Omega

Dr. B. L. Mendel has been elected 1968-69 president of the Montreal Alumni Chapter of the Alpha Omega Fraternity and the Mount Royal Dental Society. Named



B. L. Mendel

as other officers were: M. Shevell, vice-president; Edward Slapcoff, corresponding secretary; A. S. Wainberg, recording secretary; and H. Ptack, treasurer.

Deaths

Gladu, Victor. 65. Montreal. Dalhousie University, 1940. 5-7-68.

Grady, Thomas Percy. Vancouver. Baltimore College of Dental Surgery, University of Maryland, 1904. 4-7-68. Survived by Madeleine (wife) and Mrs. Allison McLeod, Mrs. Blanche Brown and Mrs. Esmond Sullivan (sisters).

Hutchison George Orrin. 64. Ottawa. University of Toronto, 1927. 12-7-68. Survived by Margaret Lillian (wife); George (son); Mrs. J. A. Fraser and Mrs. D. S. Macdonald (daughters); Harold K. (brother); and Mrs. O. B. Werntz and Mrs. Ashley Norcross (sisters).

Structural and Chemical Organization of Teeth

A. E. W. Miles, ed. *New York and London, Academic Press, 1967. Volume I 525 p. Illus. \$27.50. Volume II 489 p. Illus. \$32.50. Two volume set \$55.00*

The best review that will ever be written about these two volumes is embodied in the preface written by A. E. W. Miles. It would be difficult to enhance Professor Miles' own summation of the purpose and content of these books.

Following the title page in each volume there is a page bearing this quotation from Herbert Spencer: "Science is organized knowledge." Professor Miles has so organized his knowledge that readers will agree that the structural and chemical organization of teeth and their supporting structures is indeed a science. The two books present a scholarly and comprehensive account of the subject. They are the product of a team of selected workers presently engaged in research in the fields covered by the various chapters.

The authors embrace all aspects of structure and chemistry at different levels of organization, and they adopt an overall view of the teeth in vertebrates. Each volume contains 11 chapters. Every chapter presents a thorough review of the literature and offers a well organized, reasoned approach which is of great value to the student and the specialist.

In contrast to other multi-author books, all contributions are of the highest quality and represent far more than a massive collection of reference material. This work has many other commendable features. There is Miles' editing and planning which have produced a unified framework. Many fine photographs and diagrams effectively illustrate the text, and there are over 3,000 titled references. The assembly and compilation of so much information must have been an enormous task; certainly the end product is an extremely valuable work, the need for which has long been apparent. Throughout the two books the exposition is clear, the language impeccable and the arrangement exceptional.

The content spans the phylogeny of dentition, tooth morphogenesis, vascular supply and innervation of dental tissue; the microanatomy, histochemistry and ultrastructure of dentinogenesis and amelogenesis; the microanatomy, histochemistry and ultrastructure of dentine and enamel; the crystalline organization and chemistry of dentine and enamel, and the structure of tooth-supporting tissue. These books will be useful to every life scientist interested in dentition and they should be a compulsory addition to any library servicing dental science. They will aid dental teachers who require authoritative, up-to-date and comprehensive references. They will be equally valuable for researchers and advanced students in zoology and paleontology. This work also constitutes an excellent text for the newly emerging discipline of oral biology. Significantly, the majority of the contained references stem from the last 30 years, a period of highly intensive and productive research on the structure and chemical organization of teeth.

This treatise testifies eloquently to the effectiveness of grant-aided dental research which has vastly increased in the post-war years. Professor Miles and his collaborators have successfully combined a variety of topics to produce this comprehensive series and should be commended for this much needed and unique reference work. Both books should be purchased since they are companion volumes.

Leon Kraitz

Clinical Virology

R. H. A. Swain and T. C. Dodds. *London and Edinburgh, E. & S. Livingstone Ltd., 1967. (Available from The Macmillan Company of Canada Limited, Toronto) 318 p. Illus. \$13.50*

With the growing use of viruses in biological research and their mounting implication in diseases ranging from the simple cold to neoplasia, virology has matured into an important scientific discipline which is no longer relegated to a chapter in a microbiology textbook.

Clinical Virology, an introductory textbook, emphasizes the clinical manifestations of the most common viral diseases. The book is concisely written and clearly illustrated. The numerous excellent colour plates are specially helpful in conveying the details of stained histological sections and the clinical appearance of various viral lesions. The first one-third of the text gives a comprehensive, yet simple, introduction to the nature of viruses and the laboratory procedures commonly used for their isolation and identification. A short chapter is also devoted to bedsoniae and rickettsiae which are organisms with both viral and

bacterial characteristics. The references are limited to recent review-type articles which give the interested reader up-to-date details that cannot be included in an introductory textbook.

This book will be particularly helpful to undergraduate and graduate students and others who seek a simple, yet practical and comprehensive, introduction to the subject of virology.

M. A. Listgarten

Your Teeth

John Chipping. London, Cottrell & Company, 1967. 70 p. Illus. £4. 4s. net.

This book contains 70 pages of pictures, drawings and explanations of what dentistry can do for patients. It also stresses what patients can and should do for themselves.

Most of the coloured pictures are excellent but several of the drawings leave something to be desired. It is unfortunate that the cases selected for illustration of crowns, bridges and partial dentures are not confined to designs that are acceptable to the supporting structures. The part about periodontic diseases is likewise weak. It is important and necessary to educate the patient correctly. This requires the use of correct terminology.

There has long been a need for an educational book to inform patients about dentistry. Numerous excellent articles about various phases of dentistry have previously appeared in nationally read magazines. These

had to be collected by dentists who wished to compile an educational book for their patients. *Your Teeth* covers many of these worthwhile topics.

D. S. Moore

Principles of Pathology for Dental Students

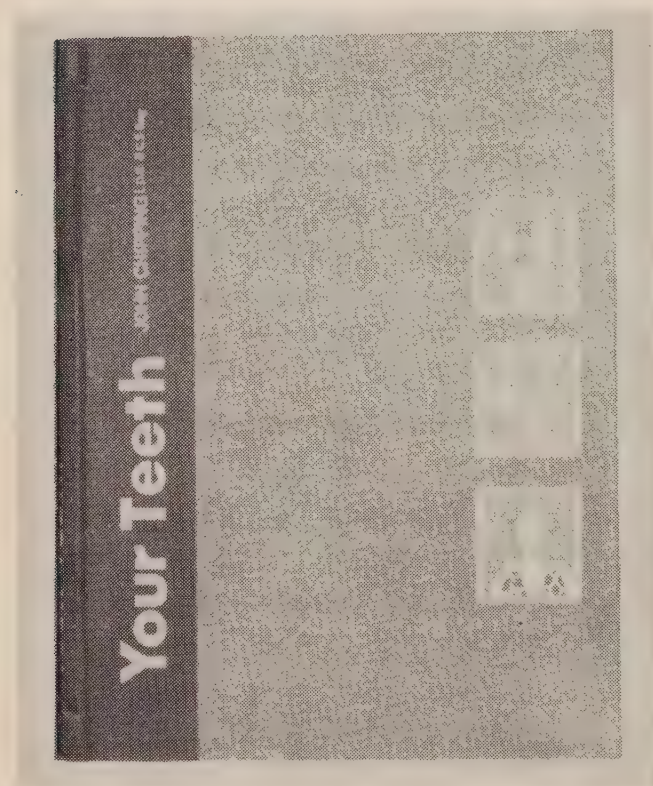
J. B. Walter, Margaret C. Hamilton and M. S. Israel. Toronto and London, J. & A. Churchill Limited, 1967. (Available from Queenswood House Limited, Toronto) 437 p. Illus. Hard bound, \$12.50; soft cover, \$10.00

This British publication tries to present the principles of general pathology in a depth and extent 'suitable to the particular needs of the dentist.' It generally fulfils this objective though there are some minor exceptions. Thus, topics like coronary artery disease, rheumatic carditis and subacute bacterial endocarditis would probably benefit from more detailed coverage; scurvy commands only half the space given to lipid-storage diseases of bone; and systematic coverage of the common diseases of joints is entirely omitted, despite the importance of the temporomandibular joint in dentistry.

The claim that 'examples of pathological lesions from the mouth are frequently used' is only partly correct and leaves a distinct impression that the single dentist among the three authors was on occasion outvoted by his medical colleagues. Thus, bone healing is illustrated by the fracture of long bones instead of the healing tooth socket which provides such a ready example in dentistry. Indeed, no dentist would omit foreign bodies, like residual apices, from the list of factors detrimental to bone healing. Similarly, the assertion that Vincent's organisms 'cause the common type of necrotizing gingivitis' is only excusable if attributed to a physician rather than a dentist; such an unqualified statement may well cause a flea-in-the-ear of unsuspecting dental students.

Principles of Pathology is a genuine 'text-book' which gives a simple outline of basic facts which a dental student is legitimately expected to know. The authors offer additional motivation by presenting these facts with a dental slant. Defects, if any, are not fundamental and the work is sound in content, presentation and format. It represents good value despite the one-third appreciation of its retail price occasioned by crossing of the Atlantic; would that we were all so fortunate! The fact that such a book should be written, however, raises two basic questions about the philosophy of dental education.

Firstly, the pressure to assimilate facts during the basic science years of undergraduate training is now so intense that any encouragement of independent learning is



strangled at birth for lack of available study time. Consequently, most schools impart only information that undergraduate students can readily regurgitate; they reserve the development of independent thinking for their graduate programs. *Principles of Pathology*, by design or accident, is ideal for undergraduate instruction of this kind. Its value may be enhanced because this is the kind of teaching that now prevails at most universities. But, unfortunately, this reflects a concern for technical rather than academic competence, and I consider it is high time either to revise the present approach to basic science teaching or adjust our notions of modern university education as a whole.

The second problem relates to the lack of dental orientation and motivation inherent in most basic science courses for dental students. Such courses are now predominantly designed and conducted by medically-oriented teachers, usually within medical faculties. General pathology often constitutes the first half of a course taken by and tailored primarily for medical students. Whatever the virtues of *Principles of Pathology* — and there are many — dental students will still be reluctant to stray from the traditional 'first 200 pages' of a textbook on general pathology recommended by their medically-oriented teachers.

Despite my pessimism, I wish the authors well in their laudable objective. Nevertheless, I firmly believe that the time is at hand to reappraise the objectives and course content of basic science teaching in general and for students of dentistry in particular.

J. D. Spouge

Operative Dentistry

H. W. Gilmore. St. Louis, C. V. Mosby Company, 1967. 695 p. Illus. \$18.10

A teacher of operative dentistry, Dr. Gilmore has given us a new modern textbook on the subject. The techniques and philosophy of operative dentistry change constantly and vary in different parts of the world and even in different areas of North America. The author gives us a good 'middle of the road' text with many fine examples and illustrations. He also points out some of the more popular variations in techniques.

Following the introduction, Dr. Gilmore describes cavity preparation, including its classification, nomenclature and principles; instrumentation; the selection of restorative materials to be used; the operating room and the operating field. He then explains the actual operating procedure for each of the restorative materials. The chapters on amalgam restorations give comprehensive information on specific cavity preparations, matrices, condensation, carving and finishing and polishing the filling. A description

of what Dr. Gilmore terms the 'modern' cavity preparation is given.

The chapter on pin-retained amalgam restorations describes Markley's method of cementing threaded pins into the teeth. I would have liked additional information on the Whaledent 'screw' pin and the Unitek 'tap' pin.

Many authors disregard silicate cement which they consider a poor restorative material. Dr. Gilmore treats it in proper perspective, recognizing its defects and stressing the need for scrupulous care in its use.

Much space is devoted to gold foil and cast gold restorations. This part of the book enhances its value. No text can describe all the variations of restorative dentistry, but Dr. Gilmore has selected some of the better and tested methods. He presents these in a refreshing and readable manner.

I have only two criticisms. Firstly, some of the illustrations do not fit accurately to the text. Thus, a captioned photograph pictures a dentist operating in the standing position while the corresponding text suggests that sitting is better. Elsewhere, the text advocates silicate restorations only for small and incipient lesions; yet all the illustrated silicate restorations are very large. Secondly, there is no mention of the baked porcelain inlay. This inlay is still preferred for certain lesions and a text on operative dentistry should include a description of it, including the indications and the method of its preparation.

Nevertheless, I commend the author for preparing this much needed modern text on operative dentistry.

G. H. Gibb

Intravenous Anaesthesia

S. L. Drummond-Jackson, ed. Ed. 3. London, England, Society for the Advancement of Anaesthesia in Dentistry, 1967. 230 p. Illus. \$6.62 (sea mail), \$10.83 (air mail)

I cannot review *Intravenous Anaesthesia* without reference to its publisher, the Society for the Advancement of Anaesthesia in Dentistry, an association with headquarters in London, England. Although I have no quarrel with the content of the book, I must take issue with the philosophy and the purpose of this publication.

Intravenous Anaesthesia was apparently intended as a text for those who enrolled in a postgraduate course which the SAAD scheduled in London July 6 and to which it invited colleagues from Canada and the United States.

Given the complexity of the subject, the incredibly short duration of the course and the exceptionally large class, I cannot recom-

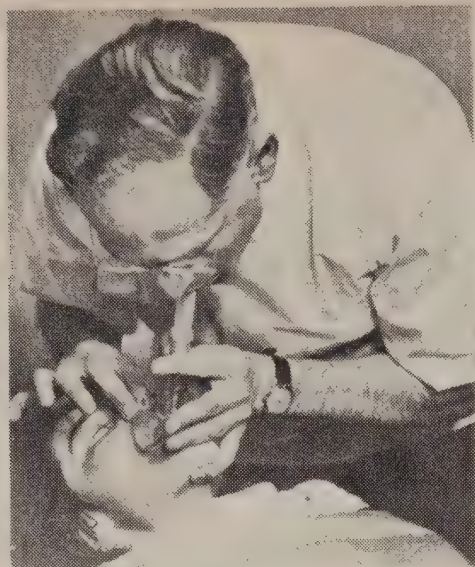


Fig. 9. A. B. Spanglow, M.D., M.S., D.D.S., F.R.C.D.C., F.R.C.P.(C).

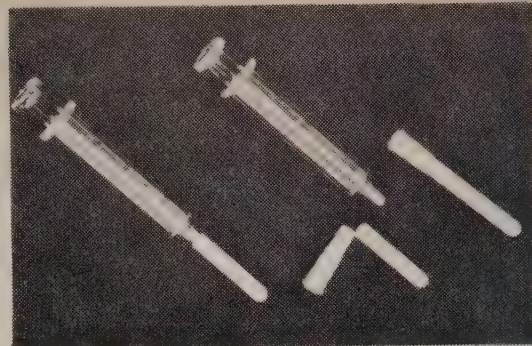


Fig. 10. For initial practice the distal inch of a needle sheath will fit the syringe nozzle and provide a safe substitute 'needle' with which to learn steadiness and delicate control.

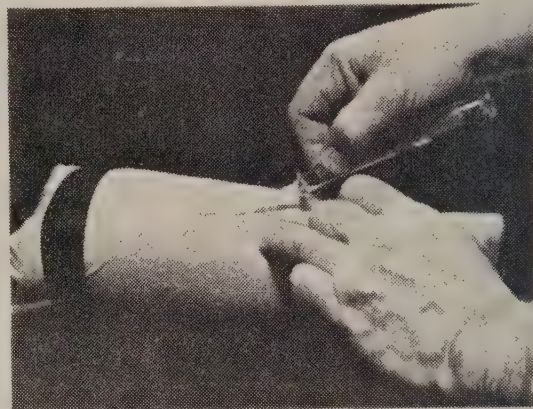


Fig. 11. A piece of latex tied into a roll with a piece of covering makes a good practice 'needle' when used at an angle, height, and position as in a clinical setting.

mend the SAAD course to my Canadian colleagues. The philosophy behind such a crash project is at odds with everything that the profession has tried to accomplish in the eight years since the University of Toronto's Faculty of Dentistry established a postgraduate course in anaesthesia—the first in Canada. Occupying 12 consecutive months, this course endeavours to train competent dental anaesthetists and improve the image of general anaesthesia as related to dentistry in this country. We have tried to make the program acceptable to our own profession, to the medical profession and to the Canadian public, and I believe that we have made significant strides. Acceptance of the SAAD's philosophy would, in my opinion, be a retrograde step. I can explain my opposition no more effectively than by quoting the following paragraph from the introduction to *Intravenous Anaesthesia*:

"In 1964 Dundee University started postgraduate teaching of intravenous anaesthetic techniques. Within a year their experience caused them to clamour for increased facilities and also for the teaching of undergraduates in this important branch of dental anaesthetics. Their reasoning was novel and incontrovertible. Dentists in practice were facing a growing demand by patients to have treatment under intravenous anaesthesia. Those who could not get suitable instruction in the method would probably start without proper guidance. An example quoted by Mr. David Main of Dundee was a practitioner who, unable to obtain an early place on a course said, 'Well, I must start experimenting with it on my own, I cannot wait that long. The man down the road is using it and the

patients are asking for it."

I hope that Canadian dentists display greater caution than the impatient Dundee entrepreneur.

R. S. Locke

Review and Test Manual for Dental Assistants

Shailer Peterson and W. B. Winnett. St. Louis, C. V. Mosby Company, 1967. 152 p. \$5.35

The *Review and Test Manual for Dental Assistants* is to be used in conjunction with the second edition of *The Dentist and his Assistant* by Peterson, the units in the Manual corresponding to the chapters with similar headings.

Each chapter begins with a brief résumé of the topic, followed by a series of pertinent questions. Also included is a pre-test which serves as an orientation to studying dental assisting, and a final test to be taken at the completion of the course. A comparison of the two marks will indicate the amount of learning absorbed during the course.

The Manual very effectively covers all aspects in which today's dental assistants are trained. It will be of great value to those who are studying to become dental assistants, also to those who wish to improve themselves in their chosen field, and to the dentist who is interested in knowing what dental assistants are being taught.

Elaine Wesley

Ottawa, too, must share . . .

Canada's dental schools are expected to produce 625 dentists a year by 1981—250 more than graduated in the university year just past. It takes foresight to cope with this surge of students; foresight, lots of bricks and mortar and, above all, 200 more full-time teachers or their half-time equivalent.

The profession, the dental supply industry and several prominent business concerns have demonstrated their readiness to aid by supporting the Canadian Fund for Dental Education. Similar assistance provided by the National Research Council, provincial governments and the universities themselves has helped the schools to build a nucleus of highly competent academic staff. But, as Canadian Dental Association officials reminded Ottawa last month, the total amount of money from all these sources falls short of what the schools will require in the years ahead.

The rate at which plans for obtaining more teachers are being implemented is a source of concern to the CDA and a disappointment to many. Plans can be retarded at many levels by conflicting interests. No doubt this may have happened in Ottawa where the federal government pours millions of dollars out of its Health Resources Fund into building new health teaching facilities but spends far less to support the training of necessary staff.

Four years have passed since the Royal Commission on Health Services urged that professional training grants be allocated to dentists preparing to train for university teaching; four years without any tangible response from Ottawa. It is difficult to comprehend why the federal government hesitates to mobilize the necessary human resources when it gives such commendable support for physical plant. Assuredly, the most lavish buildings will be of little avail without a sufficient complement of teachers. And even if there were no proposal to increase the annual intake of students, the case for denying support would still be unanswerable. Here, surely, is a situation worthy of more sympathy from Ottawa.

Inevitably, widely differing views are held concerning the federal government's responsibility in dental education. There are those who would deny that Ottawa has any role on purely constitutional grounds. There are also those who regard this as an untenable argument and cite other federal-provincial arrangements in support of activities which fall primarily under the jurisdiction of the provinces. The result, of course, is that aid to dental education, like much else in Canada, must be a subject for thoughtful and constructive compromise. The overriding need is in the staffing of our dental schools. It is in the nation's interest that this shall be as unhampered as possible. The

future of the profession does indeed depend upon the kind of education our students get.

Perhaps we should be glad that dental education with all its shortcomings makes any sort of headway; but the looming teacher shortage is so serious that it is inadvisable to ignore the problem. If, too, the profession is concerned with its 'image' and role in the community, the vigorous progress of dental education is one of the most important factors in determining the outlook and professional standing of its future members. If during the forthcoming period of expansion the standard of dental education is to advance, we will need many more teachers of the highest calibre who must maintain our traditions of excellence.

letters • courier

Radiation Hazards in Dentistry

To the Editor:

The critical organs that are most sensitive to radiation are various organs in the head and trunk, active blood-forming organs and the gonads.¹ The sensitive organs in the head include the lens of the eye;¹ irradiation of the eyes can lead to impaired vision.

Much has been published about the protection of the gonads, during dental radiographic examination, by the use of proper beam collimation, shielding, the wearing of lead aprons, and so on. The relative distances of the organs from the x-ray source are such that the radiation dose received by the eyes of the x-ray operator is only slightly larger than that received by the gonads. The eyes of the patient, however, receive up to 1,000 times more radiation than do the gonads.

Five x-ray machines, all about 10 years old, were recently tested in local dentists' offices. They were equipped with standard (short) cones and had inherent filtration equivalent to 0.5-2.0 mm. of aluminum. They delivered the following dose rates to the organs of a hypothetical unshielded patient: skin 500-4,000 mR/sec.; eye 20-1,000 mR/sec. (depending on the angle of the beam); gon-

ads 0.01-1 mR/sec. (depending on the angle of the beam). During all these measurements the beam was directed horizontally or at a downward angle, never upward toward the eye. Of the beam directions used, the cuspid angulation gave the most radiation to the eye. Some of the lower periapical angulations would also allow undesirable amounts of radiation to reach the eyes and other sensitive organs and glands in the head.

Methods used to reduce the radiation dose received by the sensitive organs of the patient and of the x-ray machine operator are (1) use of ultra-speed film and special developers, (2) increased collimation of the beam, and (3) beam filtration equivalent to 2 mm. of aluminum. An excellent article on this topic has recently been published.²

Further research should be done to determine better methods of protecting radiation sensitive organs in the head and trunk during dental radiographic examination.

G. R. Freeman,
Professor of Chemistry,
University of Alberta,
and

E. Adler, DDS,
8760-149th St.,
Edmonton, Alta.

1. National Bureau of Standards Handbook 59. Permissible dose from external sources of ionizing radiation. Superintendent of Documents, Washington, D.C., 1954, revised 1958.
- J. A. Reid. Improved exposure and processing techniques in dental radiology. J. Canad. Dent. Ass. 33:474, 1967.

The foregoing letter was referred to two consultants for advisory comment. (Ed.)

To the Editor:

The question of radiation exposure of the eyes has received attention by investigators in the past and it has been realized for some time that radiation may result in cataract formation. However, the dosages required to do so are hundreds of times in excess of those used in dental radiography. Goggles with special protective lead glass could easily be worn by the patient and reduce the exposure to virtually zero, but I feel that this procedure would needlessly alarm the patient and create fear about a procedure which has not been shown to be harmful. In fact, Professor A. S. Richards of the University of Michigan in a review of the medical and dental literature of the past 40 years was unable to uncover a single incidence of injury resulting from dental radiography. And this was in a period when dosages were greatly in excess of present day exposures. No one could argue that any non-essential reduction is desirable or that further research might be helpful; but I disagree that there is any need for alarm.

The dosage figures reported by Doctors Freeman and Adler are within reasonable limits. In my view their letter reflects an expression of personal opinion, not a scientific investigation.

D. W. Stoneman, DDS,
Chairman, Division of Radiology,
Faculty of Dentistry, University of Western
Ontario,
London, Ont.

To the Editor:

A clinical study of radiation cataracts and the relationship to dose (Merriam and Focht 1957) found that 200 R was the smallest single dose that produced a cataract in human eyes, whereas intermediate values of 400 R and 550 R were the smallest total doses that produced cataracts when the total dose was fractionated (period of rest interposed between exposures) over periods of between

three weeks and three months and over three months, respectively.

An experimental study (Richards and Webber 1964) of the exposure of the lens of the eye resulting from a 14-film periapical survey made with high-speed film (ASA speed group D), short pointed cone, 65 kVp, 10 mA total filtration equivalent to 2 mm. of aluminum and a 2.9 inch diameter beam found the total exposure of the eye was 77 mR which was delivered at the rate of 23 mR/sec. This rate checks very well with the minimum rate reported by Freeman and Adler. The fact that surveys can be made with existing equipment and films that yield such remarkably small exposures of the eye suggest that more research to protect the eye is not as pressing an issue as is the education of dentists in the use of existing safety measures.

In man, a latent period of two to 10 years may elapse between the exposure of the eye to ionizing radiation and detection of the resulting lesion. If eyes were damaged years ago by exposure to x-rays in dental offices, ample time now has elapsed for the damage to manifest itself. However, no studies have been reported which establish a correlation between irradiation of the eye from dental sources and damage to the eye. If undetected damage to the eye has actually occurred as a result of the millions of dental x-ray examinations that have been made in the past, it is extremely unlikely to occur again in the future, for present radiographic practices employ far smaller doses of filtered radiation administered by beams of radiation that are carefully limited in size.

A. G. Richards, MS,
Professor of Dentistry,
University of Michigan,
Ann Arbor, Mich., USA.

A Reader Writes from Africa

To the Editor:

This is to notify you of my address for the next two years and where you may send my CDA Journal. I have just finished setting up my dental office — brand new equipment, including an air turbine. A University of Toronto 1968 graduate, I am now a Uganda civil servant. I am the only dentist for the whole western region of this country with a population of two million people. I am enjoying it very much.

L. Lawrence, DDS,
P.O. Box 10,
Fort Portal, Uganda, E. Africa.

**Principes de l'enquête épidémiologique
sur les anomalies dento-faciales:
résultats obtenus chez 11,318 élèves
de la Polynésie française**

L. J. Baume, DMD, MSD, Genève, Suisse*

P. Genest—UTA—Air France



La Société française d'Orthopédie dento-faciale a mis au point une terminologie des structures dento-faciales à l'état normal et dérangé. Cependant, à cause de sa haute spécificité, elle ne se prête guère à une classification statistique. D'autre part, les neuf rubriques à quatre chiffres, consacrées aux anomalies dento-faciales dans la nouvelle édition de la Classification internationale des maladies de l'OMS, sont d'une portée trop générale pour susciter l'intérêt des épidémiologistes dentaires. Un comité d'experts de l'OMS (1962) a inclus l'enregistrement des anomalies dento-faciales qui constituent selon l'examineur un handicap. Les résultats obtenus grâce à cette méthode utilisée chez 11,318 élèves de la Polynésie française sont présentés. Ils mettent en évidence le rôle déterminant du facteur ethnique. En évaluant cette méthode standard OMS à la lumière des résultats obtenus, il est proposé: (a) de revoir la liste actuelle des anomalies, (b) de définir les critères pour chaque anomalie handicapante. Le but à atteindre serait de créer une méthode objective et capable d'être reproduite.

Dentofacial anomalies in 11,318 children of French Polynesia

The classification of dentofacial structures under normal and abnormal conditions originated by the Société Française d'Orthopédie Dento-Faciale is too cumbersome for statistical use. The nine items in the four-digit classification of dentofacial anomalies as listed in the eighth (1965) revision of the World Health Organization's International Classification of Diseases, on the other hand, are too broad for this purpose. A 1962 WHO expert committee therefore classified dentofacial anomalies in terms of whether they constitute a handicap in the opinion of the examiner. This classification was used in a recent survey of 11,318 French Polynesian school children aged 4-19. The results disclosed a racial pattern in the prevalence of certain anomalies. The actual list of malocclusions should be revised and the criteria for each class of handicapping anomalies should be rede-

fined to increase the accuracy, reproducibility and comparability of the results.

Mitteilung einer Untersuchung von 11,318 Kindern in französisch Polynesien

Es ist das Verdienst der Société Française d'Orthopédie Dento-Faciale, eine Nomenklatur der Gebiss- und Kieferstrukturen im normalen und gestörten Zustande aufgestellt zu haben, die Anspruch auf Vollständigkeit, Einfachheit und Klarheit hat. Da diese aber alle Einzelheiten einschliesst, kommt sie als Einteilung für statistische Erhebungen nicht in Frage. Andererseits haben die neun vierzifferigen Klassen von Gebiss- und Kieferanomalien, die in der neuen, 8. Revision der Internationalen Einteilung der Krankheiten der Weltgesundheitsorganisation enthalten sind, einen zu allgemeinen Charakter, als dass sie von Interesse für die zahnärztliche Epidemiologie wären. Alle statistische Erhebungen über Gebiss- und Kieferanomalien müssen einerseits den allgemeinen Grundsätzen der epidemiologischen Forschung entsprechen und andererseits die spezifischen Besonderheiten der kieferorthopädischen Diagnose berücksichtigen. Ein Expertenausschuss der WGO hat im Jahre 1962 Normen für statistische Erhebungen über Zahn-, Mund- und Kieferkrankheiten aufgestellt. Darin sind auch die Zahnstellungsanomalien berücksichtigt, soweit sie nach Ansicht des Untersuchers eine Behinderung darstellen. Es wurden die Ergebnisse einer mit dieser Methode an 11,318 Schulkindern durchgeführten Untersuchung mitgeteilt und ein entscheidender Einfluss der Rasse festgestellt. Die kritische Beurteilung der angewandten Standardmethode führt im Lichte der gemachten Erfahrung zum Vorschlag: (a) die Liste der angeführten Anomalien neu zu überprüfen und zu vervollständigen; (b) genaue Kriterien für jede einzelne behindernde Gebiss- und Kieferanomalie aufzustellen. Damit könnte ein grösserer Wahrheitsgrad erreicht und zugleich die Vergleichbarkeit der Aussagen gesichert werden.



L'étude de la nomenclature et la classification des anomalies dento-faciales appliquées à l'enquête épidémiologique sont des préoccupations étroitement liées à l'histoire de la Société française d'Orthopédie dento-faciale.

En effet, sous l'égide de Villain, Frey et Lumière puis sous l'impulsion d'Izard¹ et enfin sous celle de Château,² cet organisme n'a cessé, depuis un demi-siècle, de créer, d'adapter et de mettre au point une terminologie complète, simple et claire des structures dento-faciales à l'état et au fonctionnement normaux d'une part, à l'état et au fonctionnement dérangés d'autre part.

En 1934 déjà, la Fédération dentaire internationale adopta cette nomenclature qui comprend également la classification des malpositions dentaires et des dysmorphies maxillo-faciales (Tableau 1). Dans le chef-d'œuvre que représente son *Orthodontie*, Izard (1950)¹ a ajouté à la liste standard des préfixes quelques nouveaux radicaux tels qu'alvéolie, version, gression, rotation, etc. qui font de cette terminologie l'une des mieux adaptées aux nécessités cliniques (Tableau 2). Cette nomenclature satisfait-elle toutefois les besoins de l'enquête épidémiologique des anomalies dento-faciales?

Écoutons ce que dit l'Organisation mondiale de la Santé dans son volume sur la Classification internationale des maladies (CIM):

“On confond souvent le but d'une classification statistique avec celui d'une nomenclature. En principe, une nomenclature médicale est une liste ou un catalogue de termes agréés pour la description et l'enregistrement d'observations cliniques et pathologiques. Pour remplir pleinement son rôle, elle doit être suffisamment étendue pour que tout état pathologique puisse être exactement enregistré. A mesure que la science médicale progresse, une nomenclature doit pouvoir s'élargir de façon à comprendre les nouveaux termes nécessaires à l'enregistrement de nouvelles observations.

“Du fait de sa spécificité totale, une nomenclature ne peut servir utilement de classification statistique. Lorsqu'on parle de statistique, on en déduit aussitôt que l'intérêt réside dans un groupe de cas et non dans des faits individuels. Le but principal d'un recueil statistique de données pathologiques est de fournir des renseignements quantitatifs susceptibles de répondre à des questions concernant des groupes de cas.”

Jusqu'en 1955, cette simplification allait si loin que seule une rubrique “malocclusion” était retenue.

La 8ème révision,³ entrée en vigueur en 1965, a catalogué, sous le chapitre des maladies buccales, deux rubriques à trois chiffres (Tableau 3):

520 Trouble de développement et de l'éruption des dents;

524 Anomalies dento-faciales, y compris la malocclusion.

Sous le terme général d'anomalies dento-faciales, qui correspond aux dysmorphies et malpositions dentaires de la nomenclature française, la nouvelle CIM contient neuf rubriques à quatre chiffres.

On admettra facilement qu'une enquête statistique sur la fréquence de ces deux rubriques à trois chiffres et même de celles à quatre chiffres manquerait d'intérêt, aussi bien du point de vue clinique, qu'étiologique ou anatomo-anthropologique.

Les enquêtes statistiques sur les anomalies dento-faciales méritent donc une étude approfondie de la part des premiers intéressés que sont les orthodontistes et les responsables de la santé publique. Cette étude devrait se baser d'une part sur les principes acquis, propres à la science épidémiologique, et d'autre part sur les particularités inhérentes au diagnostic orthodontique. Nous nous proposons d'exposer ces principes fondamentaux puis de présenter les résultats d'une enquête effectuée chez 11,318 élèves de la Polynésie française.

PRINCIPES GÉNÉRAUX PROPRES AUX ÉTUDES ÉPIDÉMIOLOGIQUES

La définition primitive de l'épidémiologie voulait établir une statistique sur l'étendue d'une épidémiologie. Aujourd'hui, forte de nouvelles acquisitions, l'épidémiologie comprend toute étude quantitative d'une maladie, quant à sa fréquence globale et à sa gravité (Baume, 1963⁴).

La collection de ces données épidémiologiques tend à remplir trois buts:

1. L'établissement de la pathologie géographique d'une maladie, par une enquête dite descriptive;

TABLEAU 1 Orthopédie dento-faciale. Nomenclature adoptée par la Fédération dentaire internationale et la Société française d'Orthopédie dento-faciale.

	Préfixe (indiquant direction et catégorie de la déformation)				indiquant volume	Radical indiquant les parties morphologiques en question, respectivement la catégorie de déformation	Adjectif indiquant particularités de la localisation morphologique
	a) Par rapport aux trois dimensions			b) par rapport à l'arcade dentaire			
	antérieur—postérieur	transversal	vertical				
I. Position des dents et groupe de dents	Pro — Retro —	Endo — Exo —	Infra — Supra —	Vestibulo — ¹⁾ Linguo — Mesio — ²⁾ Disto —	—	position	maxillaire—mandibulaire supérieure—inférieure unimaxillaire—bimaxillaire
Ia. Position d'une dent sur place						rotation	
II. Position des dents et des maxillaires en occlusion	Pro — Neutro — Retro —	Endo — Exo — Latero —	Infra — Supra —	Mesio — Neutro — Disto —	—	clusion	unilatérale—bilatérale droite—gauche symétrique—asymétrique
III. Position des maxillaires et des arcs alvéolaires par rapport au squelette facial	Pro — Retro —	Endo — Exo — Latero —	Infra — Supra —	—	macro micro	gnathie	partielle—totale antérieure—postérieure
IIIa. Position du menton (comme le point plus avancé de l'arc basal)	Pro — Retro —	Latero —	Infra — Supra —	—	macro micro	genie	alvéolaire (dentaire)— maxillaire—mandibulaire coronaire—apicale
IV. Position d'autres parties faciales principales a) lèvres b) joues	Pro — Retro —	Endo — Exo — Latero —	Infra — Supra —	—	macro micro	cheilie melie	mesio— disto— vestibulaire

1) perpendiculaire à l'arcade dentaire.
2) dans le sens de la courbe de l'arcade.

2. La planification du traitement et de la prévention collective d'une maladie et le contrôle des soins institués;

3. L'étude étiologique et écologique d'une maladie par la comparaison de groupes (cohortes) exposés et non exposés à certains facteurs déterminés.

A ces fins, on utilisera une technique standard qui sera simple, précise, sûre et reproductible. Cette normalisation portera sur l'échantillonnage, le recueil des données se référant à des indices et critères appropriés, le dépouillement statistique et l'interprétation des résultats.

Dès sa création, l'OMS s'est appliquée à harmoniser les méthodes statistiques. Nous lui devons des normes mondialement reconnues (OMS, 1962⁵). De son côté, la FDI, en étroite collaboration avec l'OMS, a préparé le champ pour trouver une solution aux problèmes de l'épidémiologie dentaire (Baume, 1962;⁶ Backer Dirks et al, 1966⁷).

Dans toute étude épidémiologique, on se référera à la définition standard des termes suivants:

Tous les gens ou les choses ayant une particularité commune sont appelés "population". Cette population peut être limitée ou illimitée; elle définit généralement la "couche" (stratum) dont provient l'échantillon.

Un groupe formé de membres d'une population représentative de la population dans son ensemble est appelé "échantillon".

"Fréquence globale à un moment donné" (prévalence) désigne le nombre des cas d'une maladie ou d'une anomalie, enregistré à un moment déterminé. Dans le présent rapport, l'expression "fréquence globale" s'entendra toujours de la fréquence globale à un moment donné.

Le terme "incidence" est utilisé pour désigner le nombre des lésions ou états nouveaux apparus pendant une période déterminée (généralement un an). Il peut également désigner le nombre de personnes nouvellement atteintes par telle maladie ou affection pendant cette période.

Par "gravité", on entend le taux d'incidence d'une maladie dans un groupe de population ou l'étendue d'une anomalie par cas. Quand on ne peut mesurer de façon absolue la gravité d'une maladie, on peut utiliser un indice pour l'exprimer.

Un "critère" est un caractère ou un procédé qui permet de décider avec certitude dans quelle catégorie se place une maladie. A défaut, le critère peut être une prescription précise de la maladie ou de l'anomalie basée sur une liste de symptômes connus pour être observés dans l'un ou l'autre cas.

Un "indice" est un chiffre utilisé pour mettre en évidence l'existence d'une caractéristique ou pour exprimer de façon quantitative la valeur de la caractéristique.

PARTICULARITÉS STATISTIQUES INHÉRENTES AU DIAGNOSTIC ORTHODONTIQUE

Le diagnostic clinique est l'acte qui permet d'établir la classification (ou la nature) d'une maladie en utilisant comme critères les symptômes généraux qui peuvent être observés. Ainsi, le critère de diagnostic clinique d'une maladie est l'existence d'une association particulière de symptômes qu'on appelle généralement syndrome. spécifiquement pour les affections du système nerveux. Cependant, rien ne semble s'opposer à l'application du terme syndrome dans le cadre du diagnostic de certaines malformations dento-faciales (Grainger, 1961⁸).

Critères du diagnostic clinique des anomalies dento-faciales. — D'une façon simpliste, on entend par anomalies dento-faciales toutes dysharmonies par rapport à la disposition admise comme normale, ou théorique, des dents et des mâchoires. Mais cette définition est insuffisante pour trois raisons:

1. Il n'est pas facile de définir les dispositions normales;

2. Il existe toujours parmi les individus d'une même population un certain degré de variation naturelle; de ce fait, il faut s'entendre sur les limites à partir desquelles il y a anomalie;

3. Il y a un changement continu de rapports et de proportions des structures dento-faciales au cours du développement individuel. De ce fait, nos points de comparaison doivent être modifiés de temps en temps.

Les lois de la statistique veulent qu'on

utilise des données diagnostiques qui ne soient pas interdépendantes, qu'il y ait donc solution de continuité entre chacune d'elles.

Cette condition est remplie dans les cas d'anomalies graves, telles que fissure, progénie, rétrognathie mandibulaire, etc. Ce choix des critères selon l'indice de gravité présente un grand intérêt au point de vue santé publique. Le mérite revient à Draker (1960)⁹ d'avoir le premier suggéré que l'indice devrait mesurer le degré de handicap inhérent à chaque anomalie. Dès lors, la distinction entre malocclusion handicapante et non handicapante devient essentielle pour toute étude épidémiologique.

Cependant la notion d'anomalie handicapante du dentiste n'est pas nécessairement la même que celle du malade (Fisk, 1960¹⁰). Pour Hagan (1956),¹¹ "il ne fait aucun doute qu'un pourcentage important de personnes ayant une occlusion s'écartant de la "normale", que l'orthodontiste considère comme devant être traitées, ne constituent pas un problème du point de vue santé publique".

Comme notre Commission FDI l'a préconisé dès le début de son activité, il convient de créer et d'adopter des normes différenciées selon le but de chaque en-

quête. Grainger⁸ distingue actuellement des enquêtes de:

Type A ayant pour but de décrire la fréquence globale des cas extrêmes, dans le cadre d'une pathologie géographique;

Type B ayant pour but de recueillir les données fondamentales en vue d'un service préventif et curatif;

Type C ayant pour but d'étudier en détail les facteurs d'une maladie intéressant les spécialistes.

Pour les études du type C, de nombreuses méthodes ont été utilisées dans le passé sans que les résultats recueillis aient été comparables aux autres, faute de standards (Hine, 1963;¹² Russell, 1956¹³).

En 1962, un Comité d'experts de l'OMS a établi des normes pour enquêtes épidémiologiques concernant les maladies dentaires, y compris les anomalies dento-faciales handicapantes qui correspondent aux types A et B précités. Selon ce Rapport OMS 242,⁵ une anomalie dento-faciale handicapante est celle qui défigure le sujet ou entrave le jeu normal d'une fonction:

"Etant donné que l'évaluation d'une anomalie dento-faciale handicapante dépend du jugement subjectif du dentiste, il ne sera pas proposé ici d'autre classification que celle

TABEAU 3 Organisation mondiale de la Santé. Classification internationale des maladies. 8ème revision, 1965.

520-529	Maladies de la cavité buccale, des glandes salivaires et des mâchoires
520	Troubles du développement des dents et de leur éruption
521	Maladies des tissus dentaires durs
522	Maladies de la pulpe et des tissus périapicaux
523	Maladies périodontiques
524	Anomalies dento-faciales, y compris la malocclusion
525	Autres maladies et affections des dents et autres organes qui les supportent
526	Maladies des mâchoires
527	Maladies des glandes salivaires
528	Maladies des tissus mous de la bouche, à l'exclusion des gencives et de la langue
529	Maladies de la langue et autres affections buccales
524	Anomalies dento-faciales, y compris la malocclusion
.0	Anomalies majeures de la dimension des mâchoires
.1	Anomalie du rapport des mâchoires et de la base du crâne
.2	Anomalies du rapport des arcs dentaires
.3	Anomalies de position des dents
.4	Malocclusion SAI
.5	Anomalies dento-faciales fonctionnelles
.9	Autres et sans précisions

qui distingue les anomalies nécessitant un traitement de celles qui n'en exigent pas.

"Une anomalie doit être considérée comme nécessitant un traitement si la déformation faciale ou le handicap fonctionnel dont elle s'accompagne constitue ou risque de constituer un obstacle au bien-être physique ou psychique du sujet."

Nous avons eu la chance d'utiliser cette méthode OMS lors de nos trois enquêtes au service de l'OMS et de la Commission du Pacifique Sud, en Polynésie française (Baume, 1968¹⁴), en Nouvelle-Calédonie (Baume, 1967¹⁵) et dans les Samoa Occidentales (Baume, 1968¹⁶). Ces trois études ont porté sur quelque 25,000 Polynésiens.

FRÉQUENCE GLOBALE DES ANOMALIES DENTO-FACIALES HANDICAPANTES CHEZ LES POLYNÉSIENS FRANÇAIS

Dans ce chapitre, nous exposerons (1) une description de la population examinée et de la méthode utilisée, (2) les résultats, (3) une discussion concernant la méthode employée.

Description de la population et de la méthode. — La composition de la population examinée, par groupe d'âge, de sexe, par groupe ethnique et localisation géographique a fait l'objet d'un rapport récent (Baume, 1968¹⁴). Il est à noter que dans la présente communication, les données recueillies chez 1,026 enfants des Australes n'ont pas été incluses.

Retenons ici que parmi les 11,318 élèves âgés de 4 à 19 ans, les garçons représentaient 49 pour cent et les filles 51 pour cent de la population examinée. Dans chaque classe d'âge, il y avait un nombre à peu près égal de garçons et de filles. Le groupe d'âge de 6 à 8 ans, avec 3,824 enfants, était numériquement le plus important. Le groupe d'âge de 15 à 19 ans comprenait 642 sujets, soit 189 adolescents et 453 adolescentes.

Au cours de l'enquête, 62 pour cent des sujets, soit 7,149 élèves, fréquentaient les écoles de l'île de Tahiti et parmi eux, 45 pour cent, soit 3,222 enfants venaient d'écoles primaires et secondaires de la capitale Papeete, formant ainsi plus du quart du total de la population examinée. La population étudiée dans les trois prin-

FIGURE 1 Présentation d'exemples illustrant la composition ethnique de la population examinée. A, le type du Polynésien relativement pur (Code 1) est représenté par une fillette dont les parents ont émigré des Tuamotu à Tahiti. B, le type métissé polynésien européen (Code 2), qui correspond à la majeure partie des habitants de Tahiti, est représenté par un adolescent souffrant d'une rare distocclusion. C, le type métissé polynésien-chinois (Code 3), à l'apparence indonésienne, est reconnaissable à l'épicanthus mongoloïde. D, le type chinois (Code 4) est représenté par une fillette dont les dents temporaires sont complètement cariées. E, le type nègre est représenté par une fillette de parents martiniquais. F, classe de fillettes âgées de 10 à 11 ans de l'école de Tehaupoo (78 km à l'est de Papeete, Tahiti). Les métis polynésiens-européens, qui représentent une forte majorité, ne sont pas indiqués. Les élèves appartenant aux autres groupes ethniques comportent leur code respectif.

cipaux archipels se répartissait comme suit: Iles du Vent (Tahiti) 69.7 pour cent; Iles Sous-le-Vent (Raiatea, Taha, Huahine, Borabora) 25.5 pour cent; Tuamotu (Makatea, Rangiroa) 4.8 pour cent.

L'identification de l'origine ethnique fut difficile, à Tahiti particulièrement. Nous avons néanmoins tenté d'établir, en tenant compte des caractéristiques dominantes des sujets, quatre groupes principaux: Polynésiens, Chinois, Européens et Noirs, et deux groupes de métis: Polynésiens-Européens et Chinois-Polynésiens (Figure 1).

La population examinée en dehors de l'île de Tahiti se composait, en majeure partie, d'enfants polynésiens ou polynésiens métissés, tandis que 425 élèves chinois sur un total de 619, soit 68 pour cent, et 262 écoliers européens sur un total de 278, soit 94 pour cent, résidaient dans l'île de Tahiti. Les Européens et les Noirs habitant les Iles Sous-le-Vent et l'archipel des Tuamotu, inclus dans ces totaux, représentaient une quantité négligeable (Tableau 4).

Le Comité OMS (1962)⁵ recommande d'adopter comme indice le pourcentage de

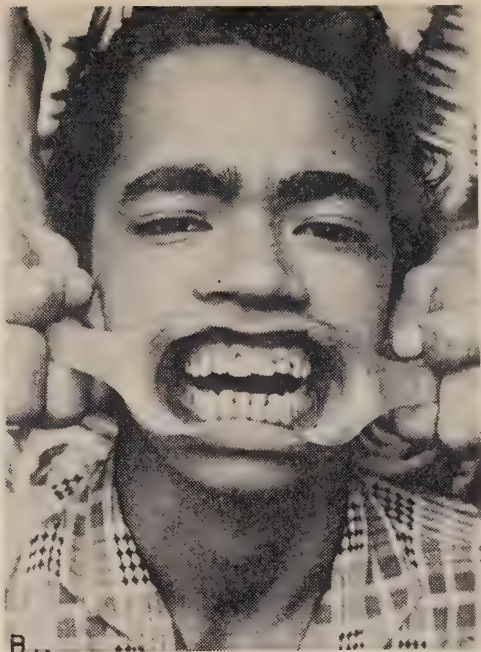
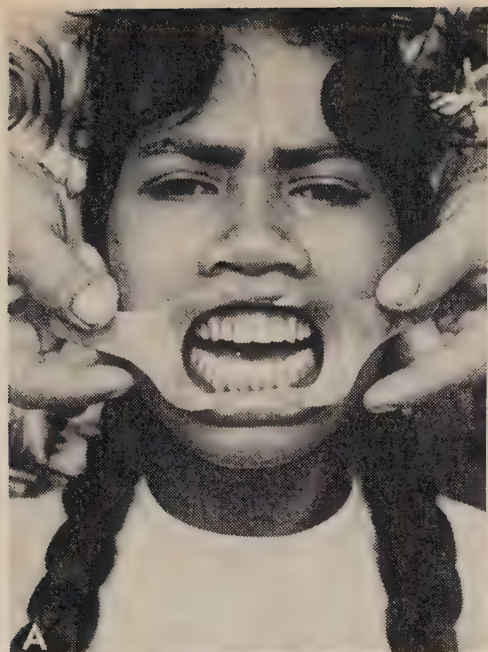


TABLEAU 4 Nombre total et pourcentage de garçons et filles examinés par groupe ethnique.

Polynésien	6,254	54.4%	85%
Polynésien-Européen	3,477	30.2%	
Polynésien-Chinois	656	5.8%	11%
Chinois	619	5.4%	
Européen	278	2.4%	3%
Noir-Polynésien	34	0.4%	
Total	11,318		

personnes d'un âge déterminé qui, de l'avis de l'enquêteur, présentent une anomalie dento-faciale handicapante nécessitant un traitement. Celui-ci devra répondre par oui ou non à la question: Y a-t-il nécessité d'un traitement?

Si un traitement est jugé nécessaire, on en précisera la raison en mettant une marque dans les cases du Tableau 5.

Résultats. — Parmi les 11,318 écoliers examinés, 671 enfants, soit 5.8 pour cent présentaient diverses anomalies dento-faciales, dont une sur mille (11 cas) consistait en une fissure congénitale, soit palatine, soit labiale (Tableau 6). La mésoclusie, classée sous le terme peu précis de "prognathisme", représentait l'anomalie la plus répandue chez les différents groupes raciaux polynésiens et chinois. Nous avons observé chez 168 enfants polynésiens (environ 3 pour cent) la présence d'un prognathisme mandibulaire

TABLEAU 5 Anomalies dento-faciales handicapantes.

Nécessité d'un traitement:	oui ☐	non ☐
Fissure palatine	☐	Fissure labiale ☐
Prognathisme	☐	Rétrognathisme ☐
Supraclusion prononcée	☐	Béance incisive ☐
Chevauchement	☐	Espacement ☐
Autres anomalies	☐	
(préciser)		

Org. mond. Santé: Sér. Rapp. Techn., 1962, 242

tandis que chez 30 Chinois (3 pour cent), la mésoclusie était due à un rétrognathisme maxillaire.

La distoclusie, classée sous "rétrognathisme", était moins répandue chez les divers groupes ethniques, à l'exception des Européens chez lesquels elle atteignait le 22.4 pour cent de toutes les anomalies, contre 11.4 pour cent chez les Polynésiens et 5.1 pour cent chez les Chinois.

Le chevauchement des incisives était répandu d'une façon presque égale parmi les enfants chinois et européens (39 pour cent); par contre, l'incidence de cette anomalie oscillait entre 29 pour cent chez les écoliers polynésiens-européens et 31 pour cent chez les Polynésiens, fait assez étonnant vu la dévastation précoce de leurs molaires de lait par la carie.

D'autre part, nous avons noté deux fois plus de béances antérieures chez les élèves polynésiens et européens que chez les chinois. La supraclusion incisive était

TABLEAU 6 Répartition en pour cent des différents types d'anomalies dento-faciales, par groupe ethnique.

Type d'anomalie	Polynésien	Polynésien Européen	Polynésien Chinois	Chinois	Européen
Nombre de personnes	289	215	59	59	49
Fissure palatine	1.4	0.5		1.7	
Fissure labiale	1.4	0.5		3.4	
Mésoclusie-gnathie	37.4	29.3	40.7	45.8	6.1
Distoclusie-gnathie	11.4	15.3	8.5	5.1	22.4
Supraclusion incisive	2.1	1.9			16.3
Infraclusion incisive	13.1	20.0	13.6	6.8	14.3
Chevauchement	31.1	28.8	30.5	37.3	38.8
Espacement	0.3		1.7		2.0
Autre	1.7	3.7	5.1		

TABLEAU 7 Nombre et pourcentage de personnes nécessitant un traitement des anomalies dento-faciales, par groupe ethnique.

	Polynésien	Polynésien Européen	Polynésien Chinois	Chinois	Européen
Nombre	289	215	59	59	49
Pourcentage	4.6	6.2	9.0	9.5	17.6

relativement répandue chez les Européens, tandis que nous n'avons pas décelé un seul cas chez les Chinois ou les Polynésiens-Chinois (le fait que la succion du pouce est pratiquement inconnue, aussi bien chez les petits Chinois que chez les Polynésiens, en serait peut-être la raison!)

Le pourcentage des enfants réclamant un traitement orthodontique (selon Tableau 7) était le plus bas parmi les jeunes Polynésiens (4.6 pour cent) et le plus élevé parmi les jeunes Européens (17.6 pour cent). La fréquence croissante de ces anomalies (Figure 2) chez les Polynésiens métissés aux Chinois puis aux Européens paraît révéler un facteur racial favorable aux Polynésiens face à la multiplicité des interférences extérieures néfastes, telles les polycaries très répandues (Baume, 1964¹⁵).

Discussion de la méthode utilisée. — Il est certain que la méthode OMS utilisée pour apprécier la fréquence d'anomalies dento-faciales handicapantes chez les enfants de la Polynésie française a démontré toute sa valeur, au point d'être

absolument nécessaire dans chaque enquête épidémiologique dentaire. Mais il faut admettre qu'elle ne constitue encore qu'un moyen de départ, dépendant de la subjectivité de l'examineur. Pour apporter à cette méthode l'objectivité nécessaire à une standardisation, il faudrait envisager de: (a) revoir la liste actuelle des anomalies dento-faciales, (b) définir les critères pour chaque anomalie handicapante à enregistrer.

Il est évident que dans ce type de dépistage (types A et B), le diagnostic se fera exclusivement par la seule inspection, sans que l'on ait recours à des mensurations ou prises d'empreintes. La fréquence d'anomalies établies constituera toujours une sous-estimation du taux réel.

La haute fréquence, chez ces indigènes, d'occlusions parfaites, dites normales, et le fait qu'actuellement seule la nécessité de traitement est enregistrée rendraient peut-être souhaitable l'introduction d'une rubrique "occlusion parfaite".

Il faut également insister sur le fait, que faute de moyens diagnostiques dans

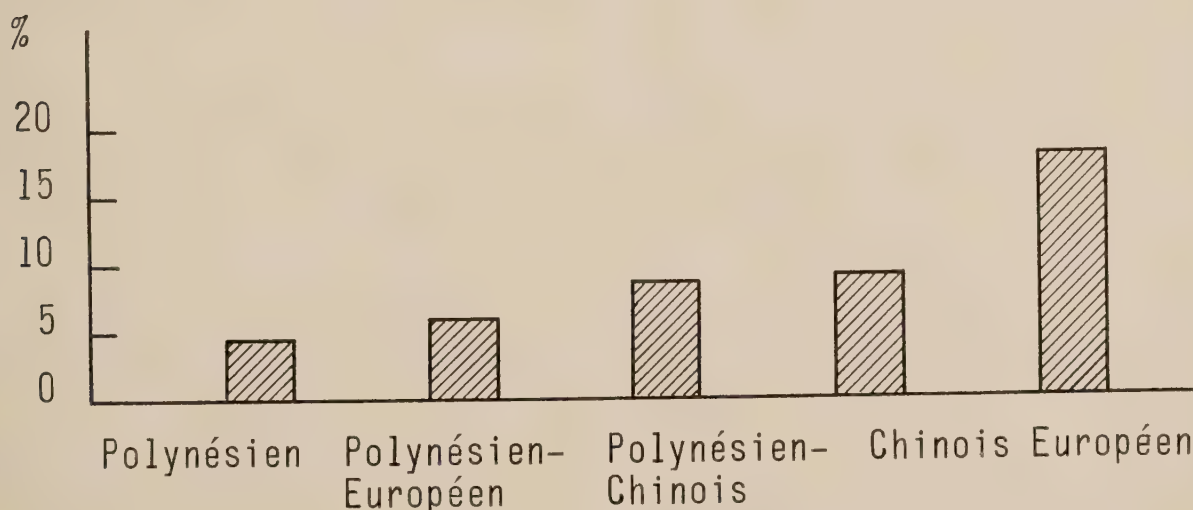


FIGURE 2 Pourcentage, par groupe ethnique, d'enfants ayant besoin d'un traitement orthodontique.

ce genre de dépistage, il est difficile de différencier la malocclusion d'une dysmorphie. Cette lacune s'est particulièrement fait sentir lors de la tabulation des vraies progénies chez les Polynésiens et des rétrognathies des maxillaires supérieurs chez les Chinois, sous le terme commun de prognathisme mandibulaire.

Alors que l'éclaircissement de cette situation serait réservé à des études ultérieures de type C, il serait possible d'améliorer la liste actuelle en ce qui concerne les anomalies transversales. Chevauchement et écartement se référant seulement au bloc antérieur, l'endognathie postérieure fait défaut. L'introduction d'une rubrique "endognathie latérale et bilatérale" est donc proposée.

Du fait du caractère souvent évolutif de l'écartement et du chevauchement, nous n'avons enregistré que les déviations transversales dépassant l'équivalent de la largeur d'une incisive inférieure. Il sera donc nécessaire d'établir des critères remplaçant la définition générale actuelle du handicap et s'appliquant à chaque type d'anomalie handicapante.

La subjectivité des normes actuelles basées sur la nécessité du traitement est illustrée par le fait que le seul traitement applicable dans la brousse serait l'extraction d'une dent déterminée à un moment approprié, alors qu'en ville tout l'appareillage spécialisé peut entrer en jeu.

Il est donc grand temps que la profession spécialisée commence à s'intéresser à ces problèmes épidémiologiques de portée mondiale. Le Comité d'experts de l'OMS a failli renoncer à prendre en considération les anomalies handicapantes dans le cadre des enquêtes épidémiologiques, vu les difficultés rencontrées pour en trouver les définitions acceptables. *Hic Rhodos, hic salta!*

RÉSUMÉ

1. La Société française d'Orthopédie dento-faciale a le mérite d'avoir mis au point une terminologie complète, simple et claire des structures dento-faciales à l'état normal et dérangé (Figure 1). Cependant, à cause de sa haute spécificité, elle ne se prête guère à une classification statistique.

2. D'autre part, les neuf rubriques à quatre chiffres, consacrées aux anomalies dento-faciales dans la nouvelle édition de la Classification internationale des maladies (CIM) de l'OMS (Figure 4), sont d'une portée trop générale pour susciter l'intérêt des épidémiologistes dentaires.

3. Toute étude statistique des anomalies dento-faciales devrait se baser sur des principes généraux propres à l'épidémiologie et considérer les particularités inhérentes au diagnostic orthodontique.

4. Un Comité d'experts de l'OMS, dans sa *Normalisation des relevés concernant l'état de la denture et les maladies dentaires* (1962) a inclus l'enregistrement des anomalies dento-faciales qui constituent selon l'examineur un handicap (Figure 1).

5. Les résultats obtenus grâce à cette méthode utilisée chez 11,318 élèves de la Polynésie française sont présentés. Ils mettent en évidence le rôle déterminant du facteur ethnique (Figure 2).

6. En évaluant cette méthode standard OMS à la lumière des résultats obtenus, il est proposé: (a) de revoir la liste actuelle des anomalies, (b) de définir les critères pour chaque anomalie handicapante. Le but à atteindre serait de créer une méthode objective et capable d'être reproduite.

Ce travail a été préparé pour le Congrès de la Société française d'Orthopédie dento-faciale (Monte-Carlo, 1968); il a bénéficié du subside no 4685.3 du Fonds national suisse.

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Savez-vous qu'un homme marié, père de deux enfants, qui gagne \$20,000 par an a droit à une franchise fiscale de \$1,125 s'il contribue, pendant l'année, le maximum de \$2,500 au régime d'épargne-retraite? Après 20 ans, la franchise fiscale originale, à 9 pour cent par an d'intérêt composé, représente \$6,300. Si la franchise fiscale reste la même pendant 20 ans, ceci signifie vingt fois \$1,125 à 9 pour cent et votre revenu accumulé sur l'argent que vous auriez payé en impôt se montera à environ \$57,500. Placez de l'argent maintenant dans le régime d'épargne-retraite et faites travailler ces dollars que vous n'aurez pas payés en impôt. Pour plus de renseignements, écrivez à: l'administrateur du régime d'assurance et de retraite de l'Associataion dentaire canadienne, Professional and Industrial Pensions Ltd., 2249 Yonge Street, Toronto 7, Ont.

Dentists' suggestions for improving dental care in rural Manitoba

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The problem of providing dental care in rural Manitoba prompted the author to seek dentists' advice on how to improve services for rural residents. Positive suggestions included extension of the provincial bursary program for dental students, intensified recruitment of rural students, a compulsory period of internship for recent graduates, additional financial incentives for young graduates, and the recruitment of graduates from British Commonwealth dental schools. Only one respondent believed that training auxiliary personnel would aid in resolving the shortage of dental manpower.

La disponibilité des soins dentaires dans le Manitoba rural pose un tel problème que l'auteur a demandé l'avis des dentistes sur la façon d'améliorer les services à l'usage des résidents ruraux. Citons parmi les mesures qui lui ont été suggérées: l'extension d'un programme provincial de bourse pour les étudiants dentaires, l'intensification du recrutement parmi les étudiants ruraux, une période d'internat obligatoire pour tous les récents gradués, des encouragements financiers supplémentaires pour les jeunes diplômés et le recrutement de dentistes diplômés dans les facultés dentaires du Commonwealth britannique. Il n'y a qu'une seule des personnes consultées, qui croit que la formation du personnel auxiliaire aiderait à résoudre le problème du nombre insuffisant de dentistes.

Rural Manitoba residents want more dental services. Their demands have generated proposals from many sources on how to resolve the underlying scarcity of dentists, but little has been heard from practising dentists. A questionnaire was therefore sent to 90 Manitoba practition-

ers to ascertain their views on this important question. The recipients — general practitioners — were graduates of the last 10 years who were trained in the latest concepts of preventive dentistry. Such training undoubtedly influenced the respondents' opinions of their future

professional activities. This article describes the results of the survey.

BACKGROUND

Manpower.—The Faculty of Dentistry at the University of Manitoba accepted its first students in 1958. Since 1962, 133 dentists have graduated. Sixty-five (49 per cent) were still in Manitoba last year. Forty-four practised in Metropolitan Winnipeg and 14 practised in rural areas. Six were serving with the armed forces and one had a full-time university appointment.

Manitoba had 291 registered dentists in 1962, the year our Faculty graduated its first students. Sixty-three had rural practices, 199 were in Winnipeg and 29 pursued institutional practice. Last year we had 288 registered dentists (55 rural; 204 Winnipeg; 29 institutional). The province had 259 dentists in private practice (55 rural; 204 Winnipeg) last year. One hundred and two dentists (29 rural; 73 Winnipeg) had graduated within the past 10 years.

The Royal Commission on Health Services¹ estimated that Manitoba's dentist-population ratio should reach 1:2,460 by 1991. In Winnipeg, with 204 practising dentists, this target had already been met. Many Winnipeg dentists, however, care for people from other areas of the province.

The School of Dental Hygiene began graduating dental hygienists in 1965. Thirty-six have graduated to date. Nineteen practise in the province, all in Winnipeg. Manitoba had a total of 24 registered hygienists last year, but none practised in rural areas.

Incentives. — Manitoba has introduced various measures to encourage dentists to practise in the province, especially in rural areas. These include the establishment of a dental school, a student bursary program and full-time civil service employment for a travelling clinician. There are also opportunities for dentists interested in *per diem* employment with private practice privileges, including provision for dental assistants, transportation,

supplies and equipment. Under this scheme adults are treated as private patients on a fee-for-service basis. In 1963, on the recommendation of the Manitoba Dental Association, the provincial health department purchased portable equipment and instruments. These can be transported to any location where a dentist may like to provide service on a private practice basis. More recently the department has encouraged rural communities seeking a part-time dentist to establish satellite dental offices within a 50-70 mile radius of a major centre. None of these incentives have so far generated any significant volume of dental services for rural areas.

METHOD

A questionnaire was sent to the 90 dentists (27 rural; 63 Winnipeg) who graduated within the last 10 years. Omitted from the survey were specialists, officers in the Royal Canadian Dental Corps and full-time salaried dentists employed by the university or other institutions. An accompanying letter described the problem and some of the measures developed by the Manitoba Department of Health to attract dentists to provide services for rural Manitoba. The letter also mentioned a program in Alberta where 20-30 dentists annually serve rural communities on a short term basis. A stamped return-addressed envelope was enclosed with the letter. Recipients were asked to return the questionnaires within 15 days. A second copy of the questionnaire and a return-addressed envelope was then sent to those dentists who did not respond to the previous mailing. Information was compiled from questionnaires returned within one month of their release.

RESULTS

Sixty (67 per cent) of the 90 questionnaires forwarded were returned. Forty came from Metropolitan Winnipeg; 20 came from the rural areas.

Thirty-three responding dentists offered 'no comment.' Twenty-four (62 per

cent) of the Winnipeg acknowledgements and seven (30 per cent) of the rural acknowledgements were in this category.

Employment Opportunities. — Winnipeg dentists were not interested in full-time employment. One dentist enquired about *per diem* employment in rural Manitoba and another asked whether he could use the portable dental equipment for private practice in rural Manitoba. Two city dentists wanted more information about rural satellite dental offices.

Three rural dentists enquired about full-time and *per diem* employment. One dentist asked about the availability of portable dental equipment. None were interested in satellite dental offices.

Conditions of Service. — Several dentists offered comments on service for rural patients. A city dentist observed that he already practised one day a week in rural Manitoba. Another advocated compensation for office overhead expenses while the city dentist is absent on rural service. A third practitioner called for groups of permanent dental care units with reasonable equipment; under this arrangement the units in each group would be served in rotation by a dentist.

One rural dentist called on city practitioners to give more assistance. Nevertheless, this respondent declared himself willing to give a week's service to an area without a dentist if it was necessary. Another signified his readiness to serve when and where required.

Alleviation of the Problem. — Thirty per cent of the Winnipeg respondents and 55 per cent of the rural respondents offered suggestions on how to provide dental treatment in rural Manitoba. The replies were grouped into the following nine categories: bursary program, students, recent graduates, financial assistance, immigrant dentists, auxiliary personnel, recruitment, dental health education and miscellaneous recommendations.

1. Bursary Program. — Four dentists (3 rural; 1 Winnipeg) expressed opinions. One rural dentist advocated annual \$1,500 bursaries for dental students with a binding contract to practise in rural Manitoba.

Two respondents said that government-subsidized students should be compelled to practise in rural Manitoba without the option of redeeming their bursary debt by repayment of cash. Another dentist recommended intensified publicity for the bursary program.

2. Dental Students. — Six dentists (3 rural; 3 Winnipeg) replied. City and rural respondents thought that students from rural areas were more likely to return to their community or surrounding region; consequently the dental school should give preference to rural applicants with similar qualifications over a city applicant. One respondent asked that fourth year students be notified about the availability of dental equipment and the towns desiring the services of a dentist on a fee-for-service basis. Another respondent proposed mobile clinics staffed by one licensed dentist and several dental students between the third and fourth year who would provide immediate care for a community. This experience, he suggested, would motivate students to return to these areas after graduation. One dentist called for a government and university sponsored plan whereby students between the third and fourth year could visit towns desiring a dentist and inspect potential practice locations. These communities should offer some financial assistance in order to attract a dentist. Another dentist urged that students' education should be more heavily subsidized and made subject to certain stipulations concerning a return of service.

3. Recent Graduates. — Five dentists (1 rural; 4 Winnipeg) expressed opinions. Some respondents urged that rural communities guarantee young dentists an adequate daily income. Others called for the provision of equipment and travelling expenses. Additional suggestions included a compulsory internship for recent graduates, full-time employment with the health department, *per diem* employment, occasional private practice based on the use of portable dental equipment, and satellite dental office practice.

4. Financial Assistance. — Six urban dentists replied to this question. Their recommendations stressed financial incentives to help establish a private prac-

tice or subsidies to underwrite equipment, office space and rent. One dentist advocated provincial and municipal financial assistance for 'line' dentists. Such dentists could rent an office and equipment in a large town of a given area. They would be encouraged to settle permanently in this town and visit nearby towns regularly according to demand. Respondents considered the current \$50 *per diem* allowance insufficient for the average busy practitioner who is asked to leave his practice in order to spend some time in rural areas where the conditions of work are less attractive. These respondents also mentioned the expenses which prevail in a busy practice while the dentist is away.

5. Immigrant Dentists. — One respondent urged that dentists be recruited in Scandinavian countries which have a good dentist-population ratio. Another proposed that BDS graduates from British Commonwealth universities be allowed to practise in rural areas under the auspices of the provincial health department and without further examination.

6. Auxiliary Personnel. — One rural practitioner favoured further training of dental hygienists and dental assistants in vocational schools and universities as a means of alleviating the problem of providing dental treatment for children and adults in rural Manitoba.

7. Recruitment. — Three city dentists commented on student recruitment. They emphasized the importance of attracting rural students into dental schools.

8. Dental Health Education. — Two rural dentists advocated a province-wide program of mass education on the benefits of early treatment and caries prevention. The program should emphasize the parents' responsibility for providing the child with the opportunity of having a healthy mouth throughout life. One dentist claimed that mass information media (daily newspapers, television) do not

reach most residents in his area. Another dentist urged closer cooperation between dental and school officials to provide a more adequate program of dental education for rural children.

9. Miscellaneous Recommendations. — One dentist urged expansion of the policy on *per diem* employment and mobile clinics. Another suggested that residents of rural towns who request dental treatment could be transported at specified times to major centres where their dental needs would be properly accommodated. There was a further recommendation for centrally located medical-dental centres.

SUMMARY

Sixty of 90 urban and rural Manitoba dentists who graduated within the last 10 years responded to a request for advice on resolving the current dental manpower shortage in rural areas. Twenty-four Winnipeg and seven rural dentists offered 'no comment.' Positive suggestions included extension of the provincial bursary program for dental students, recruitment of rural students, compulsory internship for recent graduates, financial incentives for young graduates and the recruitment of graduates from British Commonwealth dental schools. Only one respondent suggested the training of auxiliary personnel to aid in resolving the shortage of dental manpower.

The incentives now available in Manitoba have failed to generate adequate dental care in rural areas. Alternatives must be sought to make dental services available to the rural population.

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Oro-antral fistula treated with lincomycin: report of case

Lincomycin, an antibiotic available since 1963, is effective against gram positive cocci, especially staphylococci and streptococci. It is particularly useful in treatment of infections of bone and soft tissue. Local irrigation with a lincomycin solution aided in the therapy of a patient with postoperative oro-antral fistula.

La lincomycine est un antibiotique qui existe depuis 1963. Il agit sur les micrococci gram positifs, et particulièrement sur les staphylocoques et les streptocoques. C'est un traitement particulièrement utile pour les infections des os et des tissus mous. Une irrigation locale avec une solution de lincomycine aide à traiter un patient qui présente une fistule oro-antrale postopératoire.

Lincomycin (Lincocin, Upjohn) is an antibiotic effective against gram positive organisms only. It is chemically unrelated to any other antibiotic. The drug's clinical application has been documented.¹⁻⁵ It is particularly beneficial in infections involving bone and soft tissue.⁶⁻¹¹ This makes it potentially useful for dental infections as the following case report illustrates.

The only reported side effect of oral lincomycin therapy has been the occurrence of loose stools or diarrhoea in a few patients. Intramuscular or intravenous therapy does not have this effect. The drug has not demonstrated any significant toxicity. Lincomycin parallels

penicillin in the range of its effectiveness. It can be administered safely to patients allergic to penicillin since it is not chemically related to penicillin nor any of its derivatives.

CASE REPORT

P.R., a 20 year old white female patient, presented on April 5, 1967, with a carious and infected upper left first molar. The palatal root extended into the left maxillary antrum and had a cyst. The patient had previously worn a partial upper denture for several years. The af-

ected tooth was anaesthetized using 1.5 ml. of 2 per cent lidocaine with 1:100,000 adrenalin and extracted. This resulted in a left oro-antral fistula. The socket was packed with a single size 4 piece of absorbable gelatin sponge (Gelfoam, Upjohn) and sutured with 00 black silk. The fistula commenced to suppurate on April 10. A radiograph taken one week later confirmed the diagnosis (Figure 1).



FIGURE 1

Subsequent examination confirmed the presence of a fistulous tract in the left alveolar process which, on probing with a director, extended well into the antrum. The mucosa lining the tract displayed granulomatous changes. The exudate had the foul odour characteristic of a staphylococcal infection. Later bacteriological culture resulted in isolation of a coagulase positive *Staph. aureus*.

The fistulous opening was sprayed with a high-speed topical anaesthetic, Cetacaine (Cetylite Industries Inc.). Two ml. of Lincocin Sterile Solution (Upjohn), containing 600 mg. of lincomycin hydrochloride, were then injected through the fistula into the left maxillary antrum using a 5 ml. syringe to which a curved antral cannula had been attached.

Irrigation was repeated daily on three consecutive office visits. Suppuration ceased and the granulomatous tissue had healed by the time of the fourth visit. The antrum was not irrigated for the next four days. Instead, pieces of gelatin sponge saturated with lincomycin and 2.5 per cent hydrocortisone acetate solution were carefully laid on the left palatal surface of the partial upper denture so as to ensure close contact of the antibiotic with the healing fistulous tract. This was done in order to seal and sterilize the wound and control residual inflammation.

By May 15 the wound had completely healed and there was no further sign of any granulation tissue (Figure 2).

DISCUSSION

The proximity of the antrum to the roots of the second bicuspid and molars presents an ideal site for the development of a fistula. This is particularly so in the presence of infection and partial or complete erosion of the thin layer of bone separating the roots from the antrum. Extraction of an infected first or second molar may leave a fistula. The consequences may range from delayed healing to severe maxillary sinusitis as in this case. Such a sinusitis may persist following spontaneous closure of the fistula which sometimes occurs.

We selected lincomycin for the treatment of this soft tissue and bone infection¹¹ because we consider this agent superior to the penicillins. Staphylococci, in our experience, are nearly always the pathogens in cases of oro-antral fistula. Long-term therapy with penicillin tends to favour the L-phase variants of staphylococci; lincomycin does not pro-

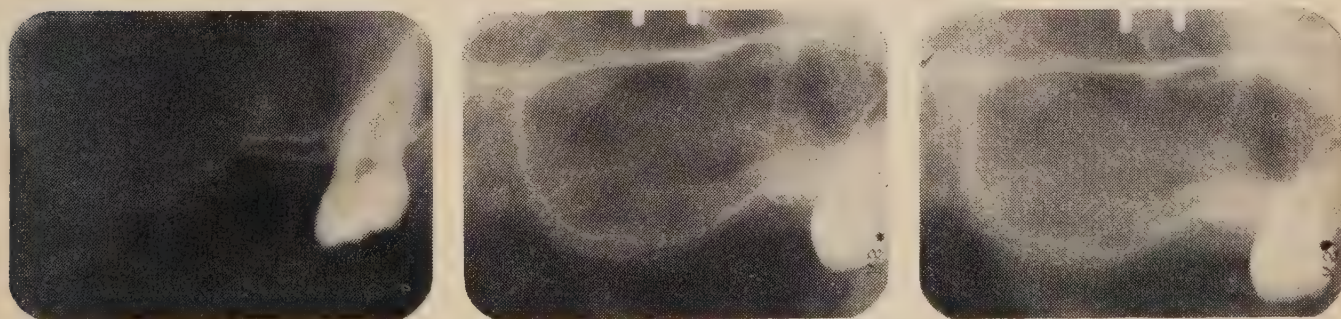


FIGURE 2

duce this phenomenon.¹²

We relied on irrigation in order to (1) obtain a high local concentration of antibiotic at the site of the lesion and (2) avoid disturbance of the normal flora by systemic therapy.¹⁰ Lincomycin solution hastened the healing and helped to eradicate the antral infection.

SUMMARY AND CONCLUSIONS

Trial washing with lincomycin solution proved effective in the treatment of post-operative oro-antral fistula. The drug is useful in staphylococcal infections where penicillin therapy may induce the formation of L-phase variants of the pathogens. Lincomycin's effectiveness is ascribed to its capacity for penetrating diseased bone and severely infected soft tissue. When an oro-antral fistula is observed following the extraction of infected maxillary molars, local irrigation with lincomycin solution may speed healing and prevent undesirable complications.

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The following figures give a growth rate comparison between the Canadian Dental Association's Retirement Savings Plan common stock fund, the Toronto Stock Exchange Industrial Average (which includes reinvested income) and the Dow Jones Industrial Average.

	Value 31-8-68	Value 31-8-67	Growth in year
CDARSP	24.786	22.137	12.0%
TSE Industrial Average	169.02	166.85	1.3%
DJ Industrial Average	896.01	901.29	-0.6%

For further information about the CDA Retirement Savings Plan, write to the Administrator of CDA sponsored Pension and Insurance Plans, Professional and Industrial Pensions Ltd., 2249 Yonge Street, Toronto 7, Ont.

Behavioural problems in dental practice

This article outlines the principles of personality, motivation and frustration which condition a patient's behaviour in the dental office. Also described are some of the defensive mechanisms invoked to counter frustration. Patients with psychoneurotic or sociopathic personality disorders present the most trying challenge for the dentist. They must be treated with the same consideration as other patients with physical disabilities.

Cet article expose les traits de caractère, la motivation et la frustration qui déterminent le comportement du patient dans le cabinet dentaire. Il décrit aussi quelques-uns des mécanismes de défense qui entrent en jeu pour remédier à la frustration. Les patients qui souffrent de troubles psychoneurotiques ou sociopathiques sont les cas les plus difficiles que le dentiste ait à soigner. Ils doivent bénéficier de la même considération que des patients souffrant d'incapacités physiques.

A patient's behaviour often imposes emotional and physical stress on the dentist. The resultant strain can seriously reduce his efficiency and compromise the quality of his services. To counter this damaging influence, the dentist should have some knowledge of human behaviour and its application to dental practice. This article describes certain principles and psychological mechanisms which can aid in better patient management.

Patients manifest stressful behaviour in countless ways: the unmanageable over-protected child who regards a simple examination as a threat; the neurotic adult whose fear of operative procedures is matched by antipathy toward local anaesthesia; the edentulous patient who cannot adjust to new dentures; the woman who expects an impossible standard of cosmetic perfection; and the individual who approaches a routine surgical experience with acute anxiety.

The practitioner must be able to exert a constructive influence on every one of these patients in order to treat them properly and with minimum personal stress. Anaesthetics, sedatives, tranquilizers, relaxing office settings, and high-speed instrumentation aid the dentist but much depends on his personal ability for encouraging patient cooperation. The dentist can control his patient's behaviour more effectively if he appreciates how and why the patient acts as he does. He can then formulate an empathetic approach to elicit the fullest cooperation from the patient.

PERSONALITY

Every patient possesses a unique combination of physical and mental qualities which are reflected in his personality. Inherited dispositions and environmental

factors like family life, religious influences and education mould personality into an infinite variety of individual forms.¹ Consequently, each patient has his own unique requirements and demands. It would be ideal if the dentist could be emotionally detached vis-à-vis his patients; but this is beyond the scope and training of most practitioners. Many are therefore disinclined to handle patients with personality problems. This may solve matters for the dentist but it does not help the patient. The cultivation of an uncritical empathetic attitude toward as many personality types as possible will do much to mitigate this problem.

MOTIVATION

We cannot understand a patient's behaviour by merely observing him. We must know what actually motivates him. If we can appreciate the reason for it, behaviour is often easier to accept.

Generally, all behaviour is motivated by a desire to satisfy needs or to relieve tensions. These needs may be quite obvious. Often, however, motivation is obscure because people are unaware or only partially aware of their real needs. Motivation may thus operate on an unconscious level. Even in the most deliberate voluntary act, the patient is rarely cognizant of all the forces that cause him to behave as he does.²

Dentists cannot and should not try to analyse behavioural motivations. It is enough to accept the fact that behaviour serves a definite purpose for each patient. The dentist's role is to satisfy the patient's obvious needs; he must try to relieve pain and maintain dental health. An appreciation of the principles of motivation helps the dentist to develop an empathetic attitude toward patients, however. He is consequently better able to provide more humane treatment.

FRUSTRATION

Life would be far different if all of our needs could be immediately and automat-

ically satisfied; but many of our drives are blocked, and this results in frustration which is a form of stress.^{1,2} The dentist may thus experience frustration when his patient neglects appointments or objects to necessary dental treatment.

EGO DEFENCE MECHANISMS

Most restraints of daily living can be tolerated and do not necessarily cause anxiety. If a golf game is cancelled by inclement weather, we can always play another day. Some frustrations, however, are more deeply rooted. These cannot be resolved so easily. Examples are social rejection, failure in competitive situations, inability to cope with the opposite sex, and marital conflict.

To combat the resultant anxiety we rely on habitual patterns of behaviour developed out of past experience.³ These ego defence mechanisms are learned adaptive reactions that involve self-deception. Operating at relatively habitual and unconscious levels, they maintain ego integrity and protect against the effects of anxiety. Their use is universal and their utilization by dental patients is commonplace. Behaviour which seems perverse, illogical or unreasonable may actually stem from the patient's unconscious needs. The dentist may be irritated by such behaviour, but criticism of the patient will only force him to look for another dentist who is more considerate of his psychological needs. A dentist may not recognize all defensive behaviour as such, but a tolerant attitude toward his patients can be of inestimable value.

Rationalization.—This mechanism allows people to express a need by means of an explanation which, they believe, is socially more acceptable than the real reason. For example, some patients reject endodontic treatment and argue that such treatment inevitably fails. However, their real motive for refusing treatment remains submerged and unacknowledged. Similar reasoning often applies to the patient who maintains that his teeth are beyond repair and demands complete dentures.

Displacement.—People who are irritated by someone they cannot challenge often displace their pent-up feelings against a substitute person. The tense executive who submits without complaint to discomforting dental care may victimize his secretary. A patient who is usually quite manageable becomes irritable and unpleasant because of something that occurred during a preceding visit. Such outbursts are not representative of the normal relationship between the dentist and his patient.

Compensation.—Patients sometimes stress an attribute in order to compensate for a particular inadequacy. Such conduct is exemplified by certain singularly attractive young ladies of limited intellectual capacity. Their aesthetic demands are more inflexible than those of the person who values appearance but does not consider it vital to his self-esteem.

Projection.—Some people habitually project blame to others for their own shortcomings and mistakes. An edentulous patient may thus attribute his condition to so-called neglect by a dentist who allegedly extracts teeth needlessly. Likewise, some parents insist that their child's dental problems resulted from improper treatment, not from parental negligence or the child's resistant attitude.

Regression.—This is a display of infantile behaviour. Adult patients who resort to crying and hysteria typify this behaviour.

PSYCHONEUROSIS

Behaviour resulting from the use of defence mechanisms is considered normal. There is, however, no sharp dividing line between normal and abnormal behaviour. Everyone may resort to occasional erratic behaviour. These episodes occur more frequently in some patients than in others. On the other hand, the psychoneurotic patient chronically displays abnormal reactions which others use only at times of specific stress. Psychoneurotic behaviour protects when normal defence mechanisms are inadequate.⁴

Dentists encounter psychoneurotics with sufficient frequency to warrant some understanding of their behaviour. The psychoneurotic patient suffers from anxiety. He has a sense of anticipation and apprehension about the most routine circumstances. Apprehension is normal in the face of dangerous or threatening situations. However, the psychoneurotic experiences constant anxiety without adequate cause. A normal, well-adjusted individual often approaches dental treatment with some qualms. This is particularly true when surgical procedures are contemplated. In the neurotic patient, the prospect of any dental care is apt to elicit pronounced anxiety. The resultant behaviour requires delicate management.

The neurotic is self-centered, demanding, tense, irritable, easily upset, unhappy and blind to the feelings of others. Some, but not all, of these characteristics are found in the neurotic patient. Moreover, many normal, well-adjusted patients may exhibit neurotic tendencies under conditions that they regard as threatening.

The patient with neurotic tendencies may break appointments, often without previous notification. When he does come, he is often inconveniently late. The subjective symptoms of his oral disorders can be misleading due to his hypersensitivity; consequently an accurate diagnosis may be difficult. The patient's over-reaction to routine procedures, often accompanied by defensive or hostile disparagement of the dentist's skill and judgement, makes the work exasperating and unnecessarily arduous. His postoperative complaints are frequently magnified. He may question a reasonable fee. He may be sceptical of an honest diagnosis. On the other hand, he may be unduly dependent and compliant, imposing emotional demands on the dentist that call for training that only a psychiatrist possesses.

SOCIOPATHIC PERSONALITIES

Sociopaths also exhibit abnormal behaviour. They are not necessarily neurotic or psychotic, however. These people are unable to conform to conventional cultural standards. Their main symptoms

are impulsiveness, unrestrained aggression, lack of conscience, lack of affection and no consideration for others. There are four groups of sociopathic personalities: antisocial individuals, dys-social personalities, sexual deviates and alcohol or drug addicts.³

Antisocial individuals are constantly at odds with society. They may come from a good home with a high moral background. They are motivated by a spirit of rebellion rather than premeditated gain. They are often unethical, ungrateful and irresponsible in their dealings with others.

The dys-social individual or criminal disregards and comes in conflict with conventional social codes because he lives his life in an abnormal environment. His is a calculated crime, motivated by the quest for gain rather than hostility against authority figures.

Sexual deviates and patients addicted to alcohol or drugs are individuals who have been rejected by society. Addicts, especially, are emotionally inadequate, lonely people who are in desperate need of help. The dentist who is aware of his patient's abnormality must not project his own cultural attitudes as he performs his services; otherwise this form of subtle rejection may accentuate the patient's already low self-esteem.⁵

Dealing with a sociopathic personality can be unpleasant and unprofitable. Practitioners, relying on their patients' honesty, good faith and sincerity, may be victimized by the immoral or illegal behaviour of the sociopath. A universally cynical or suspicious attitude toward patients is not the best protection against such abuse, however. Sociopaths are sick in terms of disturbed interpersonal rela-

tions and social insensitivity. They deserve consideration like anyone else with a physical disability.

A dentist is expected to treat cardiac or diabetic patients within the framework of their physical defect. He must likewise be ready to treat the dental problems of neurotic and sociopathic patients within the framework of their psychological maladjustments. To do so intelligently, he must know some of the fundamentals of abnormal behaviour.

SUMMARY

This paper outlines some basic principles of human behaviour which relate to the practice of dentistry. It examines the processes expressed by personality, motivation, frustration, ego defence mechanisms, psychoneurotic behaviour, and sociopathic personality disorders.

A better understanding of these processes helps the dentist to evaluate his patients' behaviour. The consequent empathy results in better patient management, increased clinical efficiency and reduced physical and emotional stress for the dentist.

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Evading dentists' bills

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After completing his studies in Glasgow, Dr. Menzies Campbell attended the University of Toronto for one year, graduating with the DDS degree in 1912. A foremost authority on dental history, Dr. Campbell lectures on this subject at Edinburgh University. He has also gathered a notable collection of dental instruments used at various periods during the development of the profession. These form the world-famous Menzies Campbell Collection now permanently exhibited at the Royal College of Surgeons of Edinburgh.

Here are a few of the subterfuges adopted by patients to avoid paying accounts. These are culled from contemporary notes made during 41 years, 1912-1953, in a British one-man private dental practice.

Long experience has convinced me that persons with roving eyes, loose-fingered handclasps (akin to a fish), and 'money no object' are worthy of vigilance; also those who constantly exude an undue degree of charm are too frequently insincere. Anyone who deliberately and without just reason fails to pay bills promptly is lacking in honour. Fundamentally, there is but slight difference between a debt-bilker and a common thief. If any there be, it is that the former often

causes direct or indirect personal suffering and misery without punishment, whereas the latter has to undergo a prison sentence. This is the position free from frills and humbug.

In self-justification, many defaulters argue that dentists are not in need of money, but how they are expected to live and discharge their own obligations promptly and honourably is not explained! Craftiness can be exercised to an almost incredible degree. Debt, besides being inherently amoral, is part of a vicious circle.

As I write, I recall a striking sermon preached by the late Canon H. R. L. Sheppard. He confronted his fashionable congregation with this query: "Do you pay your bills promptly?" He then referred to shopkeepers, particularly dress-makers in a small way, forced to relinquish business because of ladies who, although well able to do so, would not pay their debts. He concluded by inviting those present to imagine what they would at that moment be wearing were they stripped of all unpaid clothing.

It was always my policy to modify charges to indigent persons, but it did surprise me to note that some patients, to whom I regularly rendered restricted fees, proved unduly exacting and un-

appreciative. They seemed to regard themselves as a privileged class with an unlimited nuisance-value. On the other hand, those for whom nothing unusual was undertaken and regular fees charged appeared, as a rule, more readily satisfied. I suppose this is one of the vagaries of human nature, one that was assuredly not exclusive to me.

With this preamble, let me now come to personal realism!

In my very early days of practice before World War I, a rather untidily attired elderly gentleman called without an appointment. He was wearing a frayed day-before-yesterday's collar, and his waistcoat was obviously foodstained. Besides, he appeared to be only superficially washed. He informed me that he had retired from business and, although residing in a large house in a select locality, was financially embarrassed as his income was derived solely from declining investments. He explained that he required upper and lower dentures but was uncertain if he could afford them. Being genuinely sorry for this old man, I quoted a considerably restricted fee. Pathetically he inquired if it were the lowest possible. When I assured him that it was, he woe-fully replied: "I need the teeth badly; you must just go ahead," and added that he would pay me immediately the dentures were inserted. When this stage was reached he opened his purse (parsimony and men with purses are, in my experience, closely associated) and slid the contents toward me. Instead of handing over my meagre fee, he invited me to pick it out. As I proceeded to do so his expression distressed me so much — I was comparatively guileless then — that I contented myself with pounds instead of guineas. Some years later this old lock-pocket's address was changed to the 'House of Many Mansions' and I was more than astonished to read in the newspapers that his estate exceeded £60,000 (about \$300,000), when golden sovereigns were daily currency!

I always liked to know to whom I was indebted for introducing a new patient. Usually such information was voluntarily forthcoming, and I customarily wrote a short note of thanks, regarding courtesy as one of life's cardinal virtues. To this

there was sometimes an unexpected reaction and, more than once, a bad debt avoided.

I recall an attractive foreigner. He inquired my fee for a full upper gold-and-vulcanite (long before the days of acrylic resin) denture. This proved satisfactory to him, but the difficulty was his departure for the Continent in 10 days' time. Was it possible to complete it by then? I assured him on this point. When the denture was inserted he was apparently well pleased and remarked that, as "short accounts made long friends," he would now pay his bill. He requested me to present his cheque without delay as he was leaving in three days and would then be closing his bank account. Next morning it was presented at my bank with instructions to expedite its clearance. I was astounded when informed that his account had been closed the day before the date entered on the cheque. I had casually inquired as he was leaving (one of the rare occasions when I had omitted to do so on the first visit) who had recommended him and was given the name of a highly esteemed patient, a man of outstanding integrity. Not unnaturally, I was more than surprised that he should be a friend of this plausible swindler. Consequently, I telephoned and invited him to lunch at my club. I then thanked him for recommending Mr. X. Obviously puzzled, he replied: "I do not know anyone of that name." I described the patient, mentioned his nationality and the date he had first consulted me. My guest was silent for a moment. Then he suddenly recalled an incident. He explained that as soon as his morning mail had been sifted he usually met a few friends for coffee in a nearby restaurant. About six weeks previously they had noticed on several occasions a lonely stranger seated at an adjoining table, and one morning asked him to join them. He recollected looking at his watch and remarking: "I must run. I have an appointment with my dentist." Then followed the usual quick-fire queries: Who is he? Where does he practise? Is he any good? Having answered these he hurriedly departed. This suave foreigner, with an excellent knowledge of English, must have mentally noted not only my name but also that of my patient. The latter

was very indignant and resolved to make immediate inquiries. Subsequently, he told me that none of his friends had again seen this stranger. I did, however, learn indirectly from another source that the absconder, a travelling salesman, had entrained for the port of embarkation within hours of handing me the 'bouncer.' On scoring this off as a bad debt and thinking of his words, "short accounts make long friends," I was reminded of something I once read: "These are my principles, but if you do not like them they can be altered!"

Fortunately, it was very rare for me to receive a 'dud' cheque. In fact, I can recall only one other occasion. From inquiries made at the time, it was evident that it would be utterly futile to proceed further in the matter as the gentleman (politeness alone influences me to describe him thus) had signed several worthless cheques. He was cultured, pleasant and, to all intents and purposes, prosperous, with both a city and country residence. The last-mentioned proved grossly misleading, as I subsequently learned they were rented furnished. Consequently, it was decidedly easy for him to decamp overnight to the Continent without anyone being aware of his sinister plans.

There was the case of the friendly bilker, who certainly created an impression of transparent honesty. Over a period of years he promptly paid two small bills. One day he telephoned to explain that he was soon to depart to fulfil an important position abroad. He had therefore decided that he ought, in case of a mishap, to have new upper and lower dentures, as well as his existing ones remodelled. These services were duly executed, besides a few fillings for his wife. Rather liking this man and, in view of his impending departure, I invited him to dine with me at my club. He then revealed a great secret. Actually, he was on something the sea had left behind — in other words 'the rocks!' He was emigrating in the hope of improving his position. The keynote of his story was dire misfortune; so I said: "You have obviously struck a bad patch. Forget about my bill. I shall score it off my books tomorrow." His eyes flooded with tears. Later, it was apparent that he had never intended to pay be-

cause, although he markedly improved his position, he never once wrote to me.

The invariable policy of a young lady — a typical hedonist — was to have only urgent dental treatment undertaken and to pay for it at irregular intervals. One day she gleefully informed me that she had become engaged to a 'priceless dream of a man!' She desired me to put her teeth in first-class order prior to the wedding. Believing that such a debt should be liquidated prenuptially, I rendered the bill promptly but to no purpose! Subsequently, I learned from the social press that the wedding had been duly solemnized; and from the photographs I noticed, with somewhat mixed feelings, that the bride's attractive smile was made possible by my unpaid efforts. After a reasonable delay I again rendered the bill to her and repeated this on two subsequent occasions, but without tangible response. After the lapse of three years I received a letter from a reputable firm of solicitors informing me that, although their client (the husband) was not liable for his wife's pre-marital debts, he was prepared to make an *ex gratia* payment of one-half in full and final settlement. Realizing that better is half a loaf than no bread, I had no hesitation in accepting this gesture.

A most exacting patient neglected to pay her long outstanding bill in spite of several renderings. As I knew that she was far from impecunious, a footnote was added suggesting early attention because of the approach of the annual audit. A week later I received a cheque accompanied by an arrogant letter from which this is an excerpt: "I am very sorry to note your state of anxiety, due doubtless to your rent being due next week. I am particularly worried on this account, as I fully realize how desperate is your need and hasten to send the money. However, I wish you to remove my name from the list of your patients." To her chagrin, a receipt was posted without comment!

A new patient required considerable dental treatment but, being *enceinte*, she desired only the minimum undertaken then and would return soon after the event. She explained that as a few months must elapse, and she and her husband loathed debt, they wished me to

render the bill to date. I did so; it totalled three guineas (\$15). Two days later I received a cheque. From what subsequently transpired, I trust readers will absolve me from vanity by quoting this extract from the accompanying crafty insincere letter: "I have the greatest pleasure in enclosing my cheque in payment of the most satisfactory work which you have executed for my wife. She would, I am fully confident, find it extremely difficult to come across any other dentist in whom she could have the same confidence as in you. This is a statement of fact, not flattery. And let me add my personal thanks and the assurance that she will not hesitate to place herself as soon as possible under your care for what, we both realize, must necessarily be extensive treatment." Now for the sequel! In due course she did appear reaffirming appreciation of my earlier efforts. As I had anticipated, it was necessary to extract certain extensively carious teeth and insert a partial denture. It was only after the bill had been rendered three times that I received a post-dated cheque for one-half of the fee with a vague promise concerning the balance. As several months elapsed without further response, a polite reminder was posted. The husband then accused me of unprofessional conduct in pressing for payment. He concluded by stating: "In view of the fact that you are obviously very hard up, I trust that the enclosed cheque (incidentally still only part-payment) will tide you over your present crisis." Such a trinity of arrogance, duplicity and ignorance is surely difficult to eclipse!

Very many years ago a shabbily dressed untidy man called to see me privately. An accountant, he assured me of his ability to collect bills when other efforts had failed. He gave me as references the names of several reputable physicians, including two friends of mine who employed him. The terms were: no commission unless successful and then 10 per cent. "Would you give me a trial with a difficult case?" he asked. Although inherently disliking his appearance, I recalled a debt which had been scored off my books as irrecoverable. I unearthed the treatment chart to which was still attached the lady's visiting card. I gave this

man the latter along with a note of the fee to hasten his departure rather than with hope of success. Nevertheless, he returned about 10 days later and handed me the full amount. I was naturally astonished and inquired about his *modus operandi*. He informed me that he had called on an 'At home' day (in a bygone age ladies had this engraved on their visiting cards). The maid-servant was very reluctant to admit him (I do not blame her), but as far as I could ascertain he literally forced an entry. For some time he was alone in the room. He naïvely remarked that he had sampled a delicious cake on a nearby table. Due doubtless to the imminent arrival of callers, the maid returned and tried unsuccessfully to unseat him. Then Madam appeared and ordered him out. He replied that he would depart only when she had paid the bill and his expenses; incidentally, for him to claim the latter was entirely illegal. At that particular moment the door-bell rang and the lady, promising to pay, ushered him into another room where she obviously liquidated more than her legal obligations. I imagine that he must have exacted a princely sum for himself because he resolutely declined to accept expenses from me. Although his tactics were decidedly questionable, nevertheless I think readers will concede that this lady was pachydermatous. However, in spite of his success, I certainly disapproved of his methods and never had any further transactions with him.

Many moons have waned since I filled four teeth for a lady, a new patient. In spite of my bill having been rendered three times, her husband ignored it until a footnote suggested an early settlement. His reaction was impertinent. He stated that he had purposely delayed payment until convinced that my treatment was entirely satisfactory. His letter concluded: "This is the first time I ever heard of a professional man lowering his dignity to ask for money. You are little better than a petty shopkeeper."

Here is another case. An entire stranger called to arrange appointments for three fillings and prophylaxis. As the tobacco stains were difficult to remove, I casually remarked rather stupidly that I was using a preparation recently market-

ed, incidentally, with high sounding trumpets. I did not inform him that I had used it only twice, in both cases with entire success. He was delighted with the result. I heard nothing from him for several months, actually not until three weeks after I had rendered his account. He then wrote: "I am astonished that you have sent me a bill. May I draw your attention to the fact that, as a result of your acknowledged experimentation, I suffered violent toothache with consequent nervous tension and sleeplessness. I presume that, in view of these circumstances, you are prepared to cancel the bill . . ." Instead of sending a stinging rejoinder refuting the bogus allegation, I forwarded his letter to my solicitors. Obviously, they must have dealt peremptorily with him because, within a few days, a cheque was received along with an abject apology unreservedly withdrawing any suggestion of malpractice. This person (an unfinished type) had walked straight into the lion's mouth.

An injustice is always unpleasant. After completing fillings and extractions for an opulent uncultured ostentatious woman, I inserted a partial upper denture. In due course a bill was rendered but ignored. As this occurred on three occasions over a lengthy period, a footnote was added tactfully suggesting that the matter might be given attention. This likewise proved abortive; so she was later informed that if the bill was not paid within a month it would pass into my accountant's hands. The reaction was startling. Her husband then informed me that unless I returned his wife's old partial gold denture (which he stated that I had retained) he would forward a cheque for half the amount of my bill. My memory was clear on the point as were my records. In reply I pointed out that I had not retained the old denture. He stated that he was prepared to contest the case. Without a receipt of delivery (no one was ever asked for this), I realized my inability to counter this untruth. Clearly there was at least one dirty dog in that particular household.

A lady, who affected 'county manners,' called one day to apologize for an inordinate delay in settling the family dental bill. She mentioned that this was due to

her husband's carelessness and handed me her own cheque in payment. She desired me to construct artificial dentures for her and arranged appointments for the family. Further, she requested me, in order to ensure prompt settlement, to address all accounts to her. In due course this was done. Readers can imagine my astonishment when, within two weeks, I received a letter from a firm of chartered accountants informing me that the lady's husband was insolvent and instructing me to forward a note of my fee to them. I replied that I did not intend to lodge a claim as the wife had promised that she would be personally responsible for all my bills. I also wrote a pleasant note to her expressing regret at the unfortunate circumstances; this she ignored. I had almost forgotten about the matter when, four years later, I learned through a mutual friend that six months previously the lady's husband had secured his discharge in bankruptcy, the creditors receiving a first and final payment of five shillings in the pound. The family then appeared prosperous, possessed a car and resided in a modern bungalow in a fashionable suburb. Consequently, I wrote to my patient, mentioning that I was pleased to learn she was now in a position to discharge my bill. However, as she failed to reply, I was entirely frustrated. I realized from the outset that my claim was founded on honour, not on civil law.

More craftiness! One day an electrical engineer wished to consult me but was unable to come during professional hours. He asked me if I could possibly make an exception and see him on Sunday mornings. I agreed and completed the treatment in three visits. On the last of these he mentioned that my electric drill (incidentally a product of the then Leighton-Jacques Company of Toronto) intrigued him because of its compactness and attractive design. Would I allow him to study its interior? Obviously sensing my reluctance, he promptly added that he would be perfectly content merely to remove the outer casing. I consented and he spent about 10 minutes inspecting the motor. In due course I rendered my bill which was returned with the envelope marked, 'Gone away.' I was not prepared to allow this defaulter to escape. As a re-

sult of discreet inquiries I ascertained his new address to which the bill was forwarded by registered post. This he ignored. So I wrote informing him that unless he paid within a month I would pass the account over to my solicitors. Before the expiry of the time-limit a letter was received from a solicitor intimating a counter-claim by my patient for "the inspection of, advice concerning, and repair of, electric motor" on a specified Sunday morning. It exceeded mine by ten shillings. Although this claim was entirely bogus, I realized that I had as much hope of collecting the debt as a celluloid dog would have of catching an asbestos cat running through Hades!

One day I was consulted by a mother whose young daughter's teeth were somewhat irregular. I spent half-an-hour studying them carefully and, later, further time in preparing and examining plaster models of the mouth. On the next visit I unhesitatingly advised against inserting an orthodontic appliance as I was convinced from long experience that the misplaced teeth would automatically rectify themselves. Mother and daughter departed very well satisfied. When I rendered a

modest bill for the consultations, to my astonishment I received a curt letter expressing surprise at being charged a fee because I "had not carried out any treatment." The mother was totally unappreciative of the fact that I had spent valuable time on her daughter's case and thus saved her considerable expense.

On occasions patients have inadvertently paid a bill twice. Curiously enough, shrewd business men were invariably the generous donors! It is interesting psychology that not even one of them ever acknowledged the return of his cheque. I suppose vanity prevented them from being courteous — a king can do no wrong!

Finally, what do you think of the businessman who wrote in these terms to a customer whose bill had been outstanding for a year: "I have carried your account for longer than your mother carried you. Now what about it?" Be all that as it may, there is always a hard core of persons who are determined to keep up with the Joneses, thus involving themselves in constant debt and misery.

70 Great George Street

Do you know that a married man with two children earning \$20,000 per year has tax relief of \$1,125 when he contributes the maximum of \$2,500 during the year to his retirement savings plan? After 20 years the original tax savings of \$1,125, if compounded annually at 9 per cent, would grow to \$6,300. If your tax relief remained constant for 20 years, that is twenty times \$1,125 at 9 per cent, your accumulated earnings on money which would be paid as income tax would grow to approximately \$57,500. Invest now in your CDA Retirement Savings Plan and let those tax deferred dollars go to work! For more information write to the Administrator of CDA sponsored Pension and Insurance Plans, Professional and Industrial Pensions Ltd., 2249 Yonge Street, Toronto 7, Ont.

Taxes on dental items

The following statement describes continuing efforts for the reduction or elimination of duty and taxes on items that are essential for dental practice.

Dental items may be subject to one or more of three types of tax: Excise Tax, a luxury tax on items claimed as cosmetics; Tariff or Duty, an import tax on goods brought into Canada; and Federal Sales Tax, a tax on manufactured goods. Provincial Sales Tax is also added on certain items but will not be considered further here.

Over many years the CDA, other dental organizations, dental trade organizations collectively and individually, faculties of dentistry and private practitioners have made representations to the federal government to have certain taxes removed. For the CDA and the dental dealers this is a continuing activity.

As a result of these efforts x-ray equipment has long been tax exempt and in 1955 import duty on dental units, chairs, engines and cuspidors was also removed. The duty had ranged from 25 to 35 per cent. Airtors and Airtor handpieces were later added to this list. In addition, dental instruments used exclusively in the mouth, including mounted points, pliers, x-ray films, handpieces, syringes, burs, mandrels, and so forth have gradually been added to a list of

items that are both duty free and exempt from federal sales tax.

A lengthy list of items, used in providing dental services and also used extensively in industry, still carry both duty and 12 per cent federal sales tax. There is an additional list of purely dental items, such as impression pastes, for which no specific tariff item exists in Canadian customs laws. Progress is slow for this last group of items but not at a standstill. For example, sales tax on unmounted teeth has recently been removed, and all materials used in the manufacture of dentures, including impression materials, are now under review. Acrylic resins used as denture base materials have been duty free for the past year. Last September, the 12 per cent sales tax on all anaesthetic solutions was removed and recently the excise tax on tooth cleaning paste and tooth cleaning tablets intended for professional use only was eliminated.

The Tariff Board at Ottawa has a study and report under way on tariffs for medical and surgical items. The report, likely to be tabled about midsummer, will be scrutinized with care and appropriate observations will be made to the Tariff Board. A tariff specialist has been consulted by the CDA and is assisting in the preparation of other presentations to both the Sales Tax Division of the Department of National Revenue and also the Tariff Board at Ottawa.

The Executive Council also has a subcommittee on taxation to oversee and participate in all matters concerning taxes associated with the practice of dentistry. This subcommittee, through its chairman, is in contact with the Department of Finance at Ottawa. It will assist in giving the dental profession proper representation before appropriate tariff and federal sales tax boards.

There has already been considerable progress in reducing duty and federal sales taxes on dental items as a result of efforts by organized dentistry, individual practitioners, members of the dental trade and certain faculties of dentistry. The Canadian Dental Association will continue to press for further reduction or elimination of duty and taxes on items essential to the provision of dental services to the Canadian public.

Taxes sur l'équipement dentaire

La déclaration suivante décrit les efforts soutenus dans le but de réduire ou d'éliminer les droits de douane et les taxes sur des articles essentiels à la pratique dentaire.

L'équipement dentaire peut être sujet à une ou plusieurs des trois catégories de taxes existantes: l'impôt indirect: une taxe de luxe sur les articles considérés comme cosmétiques; les droits de douane: une taxe d'importation sur les marchandises importées au Canada; et la taxe de vente fédérale: une taxe sur les produits manufacturés. Une taxe de vente provinciale s'ajoute aussi sur certains articles, mais nous n'en traiterons pas ici.

Pendant de nombreuses années, l'ADC, d'autres organismes dentaires, des maisons d'équipement dentaire, ainsi que des facultés dentaires et des dentistes, ont pris contact avec le gouvernement fédéral, collectivement et individuellement, pour faire supprimer certaines taxes. C'est l'une des activités continues de l'ADC et des négociants en produits dentaires.

A la suite de ces efforts, l'équipement de rayons-x a été exempté de taxe il y a déjà longtemps, et en 1955, les droits d'importation sur les blocs opératoires, les chaises, les moteurs et les crachoirs ont été également supprimés. Les droits de douane étaient jusque là de 25 à 35 pour cent. On leur a adjoint par la suite, les turbines "Airotor" et les pièces à main à turbine "Airotor". De plus, les instruments dentaires utilisés exclusivement dans la bouche, y compris les pointes montées, les pinces, les films pour radiographie, les pièces à main, les seringues, les fraises, les mandrins, etc. . . . se sont ajoutés aussi petit à petit à la liste des articles exempts des droits de douane et de la taxe de vente fédérale.

Néanmoins, il y a une longue liste d'articles servant à exécuter les services dentaires qui sont encore soumis aux droits d'entrée et à la taxe de vente fédérale de 12 pour cent. Il y a aussi une liste supplémentaire d'articles purement dentaires, tels que les pâtes d'empreinte,

pour lesquelles les lois douanières canadiennes n'ont pas prévu de catégorie spéciale. En ce qui concerne cette dernière sorte d'articles, les progrès sont lents mais la situation n'est pas statique. Par exemple, la taxe de vente sur les dents non montées vient d'être supprimée et tous les matériaux utilisés pour la fabrication des dentiers, y compris ceux qui servent à prendre les empreintes sont maintenant sous révision. Les résines acryliques utilisées comme matériaux de base pour les dentiers sont exemptes de droits de douane, depuis l'année dernière. En septembre dernier, les 12 pour cent de taxe de vente sur toutes les solutions anesthésiques ont été supprimés et récemment, l'impôt indirect sur les pâtes abrasives et les cachets pour nettoyer les dents, destinés au seul usage professionnel, a été éliminé.

Le bureau des tarifs douaniers, à Ottawa, attend actuellement le résultat d'une étude des tarifs sur les articles à usage médical et chirurgical. Le rapport, qui sera sans doute déposé vers la mi-été, sera étudié avec soin et donnera lieu à des recommandations auprès du conseil des tarifs douaniers. L'ADC a consulté un spécialiste des tarifs et collabore à la préparation d'autres mémoires à l'intention du département de la taxe de vente du Ministère du revenu national et du bureau des tarifs douaniers, à Ottawa.

Le conseil exécutif a aussi formé un sous-comité chargé de la taxation pour s'occuper de toutes les questions concernant les taxes touchant la pratique dentaire. Ce sous-comité, par l'intermédiaire de son président, est en rapport avec le Ministère des finances, à Ottawa. Il assurera une bonne représentation de la profession dentaire auprès des commissions chargées d'établir les tarifs douaniers et les taxes de vente fédérales.

Les efforts de la dentisterie organisée, des praticiens privés, des membres de l'industrie dentaire et de certaines facultés dentaires ont déjà abouti à une réduction considérable des droits de douane et des taxes de vente fédérales. L'Association dentaire canadienne continuera ses efforts en vue de réduire encore ou d'éliminer ces droits de douane et ces taxes sur des articles essentiels au soin dentaire de la population canadienne.



Normes internationales pour les matériaux et dispositifs dentaires

Role of the FDI in international specifications for dental materials and devices

The Canadian Dental Association was the first member association of the Fédération Dentaire Internationale to adopt FDI specifications for dental materials and devices. The CDA and individual Canadian supporting members of the FDI not only helped to finance the development of these FDI specifications but, by their acceptance, gave them great international impetus. Canada's dentists have benefitted in return by their ability to rely on internationally accepted standards rather than specifications borrowed from other lands.

The Federation has so far formulated nine specifications for the following dental materials: alloy for dental amalgam, dental mercury, denture base polymer, dental inlay casting wax, dental silicate cement, dental casting gold, dental zinc phosphate cement, agar impression material and alginate impression material. The FDI has also established an effective cooperative arrangement with the International Organization for standardization (ISO) whereby FDI specifications will

L'Association dentaire canadienne a été la première association membre de la Fédération dentaire internationale à adopter les normes de la FDI pour les matériaux et dispositifs dentaires. L'ADC et les membres contributeurs canadiens de la FDI ne se sont pas contenté d'aider à financer l'établissement des normes de la FDI: en les acceptant, ils leur ont donné une grande importance à l'échelle internationale. Les dentistes canadiens, à leur tour, ont eu l'avantage de pouvoir se baser sur des standards internationalement acceptés au lieu d'emprunter des normes à d'autres pays.

Jusqu'ici, la Fédération a établi neuf spécifications pour les matériaux dentaires suivants: alliage pour l'amalgame dentaire, le mercure dentaire, le polymère pour les prothèses, la cire d'empreintes pour les incrustations, le ciment silicate dentaire, l'or à couler, le ciment au phosphate de zinc, le matériel d'impression agar et le matériel d'impression alginate. La FDI a conclu également un arrangement mutuel avec l'Organisation internationale de normalisation (OIN), par lequel les spécifications de la FDI deviendront des recommandations OIN et vice-versa. Ceci permet de formuler et de reviser conjointement les spécifications pour les matériaux et les instruments dentaires. De plus, grâce au travail actuel, la FDI-OIN devrait pouvoir établir d'autres normes pour les films radiographiques dentaires, le ciment à l'eugénate de zinc, les dents en plastique, les dents en porcelaine, les forets et les limes à ca-

become ISO recommendations and ISO recommendations will be accepted as FDI specifications. This permits the joint formulation and revision of specifications for dental materials and instruments. Further FDI-ISO work now in progress is expected to yield additional specifications for dental radiographic film, zinc oxide-eugenol cement, plastic teeth, porcelain teeth, root canal reamers and files, rotary abrasive instruments, hand and surgical instruments, and rubber-base impression materials.

The FDI has also prepared recommendations for radiation dental hygiene and for the testing of dental materials. Other recommendations for the acceptance of dental drugs and therapeutic agents by member associations are now almost complete. In addition, work has commenced on recommendations for the biological evaluation of dental materials.

Obviously, no single national dental association, not even a large one with considerable financial resources, can mount a program which is as effective as that of FDI member associations working together. Cooperating in this way, associations like the CDA can aid with financial and technical contributions. Canadian dental schools and other Canadian institutions now have a nucleus of technically qualified people who cooperate effectively with the FDI-ISO standardization program in dental materials and instruments. Their contributions will foster the development and the manufacture of high quality dental materials in Canada and will restrict the importation of inferior material. The FDI program will in turn assist Canadian dentists in rendering a better health service for the public.

naux, les instruments abrasifs rotatifs, les instruments chirurgicaux et les instruments à main, les matériaux à impression à base de caoutchouc.

La FDI a préparé également des recommandations pour l'hygiène dentaire par radiation et pour la vérification des matériaux dentaires. D'autres recommandations pour l'acceptation de médicaments dentaires et d'agents thérapeutiques par les associations membres sont maintenant presque prêtes. De plus, des recommandations pour l'évaluation biologique des matériaux dentaires sont à l'étude.

Il est évident qu'aucune association dentaire nationale, même si elle est importante et dispose de ressources financières considérables, ne peut établir un programme aussi efficace que celui de la FDI, avec la collaboration de toutes les associations membres. En coopérant de cette façon, les associations comme l'ADC peuvent apporter une aide financière et technique. Les facultés dentaires du Canada et autres institutions canadiennes ont maintenant un noyau de techniciens qualifiés qui peuvent coopérer efficacement au programme de normalisation de la FDI-OIN pour les matériaux et instruments dentaires. Leur contribution encouragera la mise au point et la fabrication, au Canada, de matériaux dentaires d'excellente qualité et restreindra l'importation de matériaux de qualité inférieure. Le programme de la FDI aidera également les dentistes canadiens à mieux servir le public.

G. C. Paffenbarger

Les chiffres suivants établissent une comparaison du taux d'accroissement entre le régime d'épargne-retraite de l'Association dentaire canadienne, la moyenne du Toronto Stock Exchange Industrial (qui inclut le revenu réinvesti) et la moyenne du Dow Jones Industrial.

	Valeur 31-8-68	Valeur 31-8-67	Plus value dans l'année
RERADC	24.786	22.137	12.0%
Moyenne TSE Industrial	169.02	166.85	1.3%
Moyenne DJ Industrial	896.01	901.29	-0.6%

Pour plus de renseignements sur le régime d'épargne-retraite de l'Association dentaire canadienne, écrivez à: l'administrateur du régime d'assurance et de retraite de l'Association dentaire canadienne, Professional and Industrial Pensions Ltd., 2249 Yonge Street, Toronto 7, Ont.

L'Association

Tournée dans l'Est du Président Brouillet

Le président de l'ADC, le Dr Henri Brouillet de Montréal a rendu visite aux sociétés dentaires de l'Est du Canada durant les mois de septembre et octobre.

Ses principales étapes ont été Charlottetown le 19 septembre, Moncton le 20 septembre, Halifax le 21 septembre, et Corner Brook (Terre-Neuve) le 3 octobre.

Il était accompagné du secrétaire, le Dr W. G. McIntosh, lors de sa visite à Terre-Neuve.

Mlle Kirker nommée secrétaire du conseil de l'enseignement

Le secrétaire de l'ADC, le Dr W. G. McIntosh a annoncé la nomination de Mlle Kay Kirker au poste de secrétaire du conseil de l'enseignement de l'ADC, à partir du 1er juillet. Mlle Kirker est entrée à l'Association dentaire canadienne en mai 1966, comme directeur du programme des tests d'aptitude. Elle était auparavant secrétaire du commissaire national de la Croix-Rouge canadienne.

Canada

Le Collège royal modifie sa position sur les examens intermédiaires initiaux

Le conseil du Collège royal des chirurgiens-dentistes a adopté, le 29 juin, la motion suivante:

"Ayant reçu de son conseiller légal une nouvelle interprétation de 10 (3), le conseil considérera les demandes d'inscription aux examens intermédiaires initiaux de la part des candidats qui avaient reçu une formation graduée acceptable lors de l'adoption de la loi, le 18 mars 1965, mais qui n'étaient pas agréés au moment de l'entrée en vigueur de cette loi, à cause de règlements provinciaux exigeant une période de pratique avant l'obtention du certificat."

Les candidats qui désirent se prévaloir de cette clause devront soumettre leur demande avant le 31 décembre 1968, pour se présenter à l'examen. L'examen, qui aura lieu en mars 1969, sera similaire à celui préparé précédemment pour d'autres groupes de candidats aux examens intermédiaires initiaux.

Des organisations dentaires et des compagnies nouvelles contribuent au Fonds pour l'enseignement

Le Fonds canadien pour l'enseignement dentaire annonce une augmentation de 33 pour cent du nombre des organisations dentaires et des compagnies qui y contribuent, pour le premier semestre de 1968.

Le rapport annuel du FCED pour 1967 a été publié avant réception des dons en provenance des organisations et firmes suivantes: l'Alberta Dental Association, l'Association dentaire de la province de Québec, l'Association des techniciens dentaires de la province de Québec, la Centennial Conference of the Toronto Alumni Chapter of Alpha Omega Fraternity, la Charitable Foundation of the Alpha Omega House Association, le Collège des chirurgiens-dentistes de la province de Québec, les diplômés en dentisterie de Dalhousie University en 1968, le Ladies Auxiliary de l'Hamilton Academy of Den-



Le Dr Roger Charette de Montréal (le deuxième à gauche) a rencontré récemment les dirigeants de l'Association dentaire canadienne et du Collège des chirurgiens-dentistes de la province de Québec pour leur faire un rapport sur l'organisation du congrès national de l'ADC, en 1969. Le Dr Charette, qui est directeur général du congrès, est en compagnie du Dr Marcel Archambault, vice-président du CCDPQ, du Dr Lorenzo Picard (assis), président du CCDPQ, du Dr R. M. LeBlanc, secrétaire du CCDPQ, et du Dr Henri Brouillet, président de l'ADC. Le congrès national se tiendra du 9 au 11 juillet à l'hôtel Reine-Elizabeth, à Montréal. Pour de plus amples renseignements ou pour vous inscrire dès maintenant, veuillez écrire au Dr Roger Charette, suite 2, 1958 boulevard Dorchester-ouest, Montréal, Qué.

tistry, le Montreal Study Club of Dental Technicians Inc., la Niagara Peninsula Dental Association, la Regina and District Dental Society, la Stratford and District Dental Society, la Chayes Dental Instrument Corporation, la compagnie du Trust Royal et la Weber Dental Manufacturing Company.

Chronique internationale

Le Dr Grainger nommé à Washington

Le Dr R. M. Grainger, du Canada, a été nommé directeur associé pour les programmes extra muros au U.S. National Institute of Dental Research. Il administrera les subventions à la recherche du

NIDR et les programmes de formation pour la recherche graduée dans plus de 100 universités et institutions diverses.

Avant d'entrer au NIDR, le 1er juillet, le Dr Grainger était chef de la clinique dentaire de l'Université de la Colombie britannique, à Vancouver, où il enseignait et dirigeait les recherches en épidémiologie et sur les applications des ordinateurs. De 1958 à 1967, il était professeur d'épidémiologie et président de la division de la recherche dentaire à l'Université de Toronto.

Le Dr Grainger s'est occupé aussi de la dentisterie sur le plan international. Au Canada, il a travaillé pour les gouvernements et les organismes dentaires. Il a contribué à la mise au point d'une méthodologie pour l'établissement de statistiques sur la santé dentaire et d'un index national de la santé dentaire. Ses

activités internationales comprennent la présidence d'un comité sur le concept et l'analyse d'essais cliniques et la présidence d'un groupe de l'Organisation mondiale de la santé qui met au point un système d'épidémiologie dentaire.

Le Dr Grainger a obtenu son DDS à l'Université de Toronto, en 1943, et il est détenteur également d'un diplôme en santé publique et d'un HScD en épidémiologie de la même université.

Dilemme de l'anesthésie générale en Grande-Bretagne

Les dentistes anglais ne semblent pas d'accord sur la proposition d'amender les règlements du Service national de santé, quant à l'administration d'anesthésies générales aux patients dentaires. Un éditorial paru dans le *Royal Society of Health Journal* rapporte que le ministre de la santé de Grande-Bretagne espère réduire le nombre des anesthésies générales et éliminer presque complètement celles qui sont administrées par des chirurgiens-anesthésistes opérant seuls.

On administre en Angleterre et au Pays de Galles plus de deux millions d'anesthésies par an pour des obturations, des extractions et des opérations chirurgicales. Environ 25 pour cent de toutes les anesthésies générales administrées dans le cadre du Service national de santé sont données par une seule personne remplissant à la fois le rôle de dentiste et d'anesthésiste. L'année dernière, une commission consultative médico-dentaire auprès du Ministère de la santé a conclu que "l'administration d'une anesthésie générale et l'exécution de chirurgie dentaire demandaient toute l'attention d'un anesthésiste et d'un dentiste respectivement et que par conséquent . . . il était impossible de combiner ces deux rôles, sans courir de risques".

Il semble que les médecins, contrairement aux dentistes, ne désirent pas apprendre à administrer d'anesthésies dentaires. L'exécution de chirurgie dentaire avec anesthésie intraveineuse ne permet plus à un anesthésiste médical de se rendre au cabinet dentaire pour donner une anesthésie rapide et de s'en aller immédiatement après.

On a suggéré différentes façons de remédier à cette situation. Citons parmi elles des restrictions sévères qui limiteront, en faveur des hôpitaux, l'usage de l'anesthésie générale administrée dans les cabinets privés et la possibilité de former des anesthésistes para-médicaux.

Les pathologistes buccaux commanditent une réunion sur la dentisterie légale

L'American Academy of Oral Pathology tiendra sa 23^e assemblée annuelle à l'hôtel Sheraton-Boston, à Boston, du 17 au 19 avril 1969. Une partie du programme sera consacrée, cette fois encore, à la dentisterie légale.

Les dentistes canadiens sont cordialement invités à assister à cette réunion. Il n'y a pas de frais d'inscription. Les dentistes qui désirent présenter une communication devront soumettre, à l'avance, des copies de leur texte au Dr Barnet Levy, AAOP Program Chairman, University of Texas, Dental Branch Institute for Dental Science, P.O. Box 20068 Houston, Texas 77025, USA.

Vous pouvez obtenir plus de renseignements sur cette réunion en vous adressant au Dr S. M. Standish, AAOP Secretary, Indiana University School of Dentistry, Indianapolis, Ind. 46202, USA.

L'Université de Cleveland offre un cours gradué de paradontologie

La Faculté dentaire et l'école des études graduées de la Case Western Reserve University, de Cleveland, Ohio, ont annoncé l'établissement d'un cours postdoctoral de paradontologie d'une durée de 2 ans (24 mois). Ce programme d'études de la science clinique et biologique combiné avec de la recherche et une formation intensive du point de vue de la spécialité, aboutit à une maîtrise en science. Le cours fournit d'excellentes possibilités aux étudiants qui s'orientent vers les carrières cliniques ou vers la recherche et l'enseignement.

Vous pouvez faire dès maintenant vos demandes d'inscription pour le cours qui commencera le 1^{er} juillet 1969. Pour obtenir plus de renseignements, veuillez

écrire au: Coordinator of Graduate Studies, School of Dentistry, Case Western Reserve University, 2029 Adelbert Road, Cleveland, Ohio 44106, USA.

Économie

En 1966, la dentisterie était, encore une fois, la quatrième des professions les mieux payées

En 1966, les dentistes ont gagné en moyenne \$17,212, soit \$1,519 de plus qu'en 1965, ce qui faisait de la profession dentaire la quatrième des professions les mieux payées, cette année-là. Leur revenu moyen était alors de \$15,693. Les chiffres publiés par le Ministère du Revenu national indiquent que les médecins sont en haut de l'échelle des salaires (\$24,993), suivis des ingénieurs et des architectes (\$21,200) et des avocats et des notaires (\$21,045).

La médecine est l'occupation la plus rémunératrice au Canada, ces dernières années, mais ce n'est que depuis 1965 que les ingénieurs et les architectes ont battu les avocats et les notaires, pour la seconde place.

Les ingénieurs et les architectes semblent maintenant talonner les médecins: en 1965, les médecins gagnaient \$3,951 de plus que les ingénieurs et les architectes, mais cette marge s'est réduite à \$3,773, en 1966.

93 condamnations pour pratique illégale au Québec

Le numéro de septembre d'*Information*, publication du Collège des chirurgiens-dentistes de la province de Québec annonce que 93 personnes ont été condamnées l'année dernière au Québec pour exercice illégal de la dentisterie.

Le montant des amendes infligées entre le 1er juillet 1967 et le 30 juin 1968 s'élève à \$19,450. Cela représente quatre condamnations de plus et \$975 d'amende de plus que l'année précédente.

Nouveau barème d'honoraires en Saskatchewan

On nous a fait savoir que le Saskatchewan College of Dental Surgeons a inauguré un nouveau barème qui représente une augmentation de 25 pour cent des honoraires dentaires. Il aligne les honoraires des dentistes de la Saskatchewan sur ceux demandés partout ailleurs dans les Prairies.

L'augmentation des honoraires revient à 2 et demi pour cent par an depuis le dernier changement important, en 1958. Il a été apporté des révisions mineures en 1963.

Le nouveau barème a été établi après qu'un comité de cinq membres eut étudié la question pendant un an et demi. Il a été déterminé en fonction des statistiques sur les honoraires dans tout le pays, établies par l'Association dentaire canadienne. Le barème repose sur le système des valeurs relatives.

Swift Current songe à un impôt pour financer son programme dentaire

Le district de santé publique de Swift Current, en Saskatchewan, songe à lever un impôt personnel afin d'aider à financer le programme dentaire de la région. D'après le *Swift Current Sun*, le ministre provincial de la santé a déjà autorisé l'application de cette taxe dentaire. Cet impôt spécial se montera sans doute à \$12 par famille et à \$6 par célibataire.

Le programme dentaire du district de santé publique, établi en 1947 avait été financé, jusqu'à présent, par des honoraires. Maintenant que le gouvernement de la Saskatchewan a institué des honoraires provinciaux pour Medicare, cette source de revenu a disparu.

Le programme dentaire couvre les soins dentaires pour les enfants de 1-12 ans, à l'exception des traitements orthodontiques. Le district emploie cinq dentistes, deux à Swift Current et un à Leader, Maple Creek et Shaunavon respectivement. Les patients supplémentaires et les cas d'urgence sont traités par des praticiens privés que le district de santé dentaire rembourse au taux de 80 pour cent des coûts de traitement.

Quatre millions d'Américains couverts par l'assurance dentaire

Plus de quatre millions d'Américains sont couverts maintenant par l'assurance dentaire, d'après une enquête qu'a faite le US Health Insurance Institute. Les fournisseurs les plus importants d'assurance dentaire sont les compagnies d'assurance privées qui couvrent plus de 1.7 million de personnes. Viennent ensuite les différentes corporations qui en assurent plus de 1.3 million.

C'est l'assurance dentaire dont l'essor est le plus rapide dans le domaine des assurances, d'après les dossiers de l'HII. Les prestations — principalement aux termes de régimes collectifs — se montaient à \$41.6 millions à la fin de 1967. Le nombre d'employés couverts par ces programmes dentaires collectifs a presque quintuplé depuis 1963.

On annonce la création du deuxième programme de services dentaires prépayés inter-états

La US National Association of Dental Service Plans a annoncé que les négociations en vue d'établir un deuxième programme de services dentaires prépayés inter-états avaient abouti. Ce programme couvrira des particuliers dans 11 états.

L'Ohio State Dental Care Corporation, en son nom et au nom d'organisations participantes en Californie, Illinois, Michigan, Pennsylvanie et Virginie de l'ouest, a signé un contrat avec la Dental Division de la Litton Medical Products Inc., pour administrer un programme de soins dentaires à l'intention de ses employés et de leurs dépendants.

Recherche

Une nouvelle substance détruit et neutralise la plaque

Un chercheur américain a démontré comment un produit de la fermentation antibiotique, qui n'a pas encore été nommé, produisait une espèce de streptomyces qui

pouvait altérer le comportement intraoral de la salive, des micro-organismes, des aliments et de la surface des dents, de telle façon qu'il ne se formait peu ou pas de plaque sur les dents. Les effets de cette substance ont été démontrés à la 4e conférence internationale sur la biologie orale qui s'est tenue à Copenhague, du 15 au 17 juillet. Un rince-bouche, contenant moins de 0.01 pour cent de cette substance et utilisé deux fois par jour pendant 30 secondes, dissout la plaque existante et empêche le dépôt d'une nouvelle plaque à 70 pour cent ou plus. Cette substance, que l'on a déclarée non toxique, qui n'est pas absorbée par le corps humain et qui apparemment n'altère pas l'interrelation des micro-organismes oraux, offre des possibilités cliniques pour l'avenir.

Les électronmicrogrammes présentés par Bernard et ses collaborateurs (Los Angeles) montraient qu'il peut se produire de la calcification autour ou à l'intérieur de la matière collagène qui semble alors se décomposer et disparaître.

Silverstone (Bristol) a démontré par microscopie à la lumière polarisée que des caries peuvent se recalcifier dans un milieu approprié. Ses électronmicrogrammes montraient des cristaux de minéral qui s'étaient apparemment reformés dans les espaces "vides" causés par les caries autour de ce qu'on pourrait appeler des prismes d'émail.

Fluoration

Le Delaware institue la fluoration obligatoire

En Delaware, la fluoration est devenue obligatoire de par la loi, au début de juin. C'est le quatrième état américain qui adopte légalement cette mesure de santé publique.

Le Connecticut est le premier état qui ait voté une loi, en 1965, rendant obligatoire la fluoration de l'eau dans les villes de plus de 20,000 habitants. A la mi-mai de cette année, huit villes du Connecticut seulement ne s'étaient pas encore conformées entièrement à cette exigence.

The Association

Ask Ottawa to Reconsider Medicare Coverage and Boost Support for Dental Education

The Canadian Dental Association has asked Ottawa to allocate more money for dental education and to broaden its interpretation of the Canada Medical Care Act. Both questions were discussed when CDA President Henri Brouillet and Secretary W. G. McIntosh met recently with the Hon. John Munro, Minister of National Health and Welfare. Also present were J. N. Crawford, deputy health minister, and R. A. Connor, chief, Dental Health Division, DNH&W.

A letter transmitted to the minister asked Ottawa to allot professional training grants for dentists who prepare themselves as teachers or researchers. The letter stressed the need for 200 more full-time dental teachers to staff Canada's expanding dental schools by 1977. It praised

the financial contribution to dental education from the National Research Council of Canada and the Canadian Fund for Dental Education but said that the total from these sources still falls short of current and projected needs. The CDA officials also asked that the federal government provide funds to enable dental schools to initiate or expand graduate programs, and that Ottawa increase university grants in order to help dental schools improve their complement of full-time staff.

A second letter, also transmitted to the minister, asked that Ottawa reconsider a recent Privy Council interpretation of the Canada Medical Care Act which empowers the Cabinet to authorize federal medicare contributions to any medically-required services that are covered under provincial insurance schemes and rendered in a hospital by a dental practitioner. The CDA Board of Governors considers the words "in a hospital by a dental practitioner" discriminatory. When performed by a dentist, many of these services can often be provided more economically in his own office than in a hospital, the letter explained.

Both letters were written in response to resolutions adopted at the 1968 annual meeting of the Board of Governors.

The resolutions follow:

"Resolved, that the CDA urge the appropriate federal government agencies to



Three Montreal dentists who are selecting essayists and clinicians for the 1969 CDA national convention, July 9-11, at the Queen Elizabeth Hotel are (l. to r.) Gérard Lussier, treasurer of the Convention Committee; Herbert Caplan, chairman of the scientific program; and P. C. Staples, who represented G. M. Dundass when this picture was taken. Dr. Dundass is chairman of local arrangements. For information or advance registration, please write to Roger Charette, General Chairman, CDA 1969 National Convention, Suite 2, 1558 Dorchester Boulevard West, Montreal, Que.

substantially increase stipends for dental graduate students preparing for teaching careers in dentistry."

"Resolved, that the Executive Council acquaint the Government of Canada with the urgent need for additional dental teachers to meet the dental personnel requirements throughout the country, and that the corporate members be urged to make similar representation to the several provincial governments, each with a view to the provision of additional public funds in support of dental teacher training."

"Resolved, that the Government of Canada be urged to ensure that under any plans concerned with the provision of health care for the Canadian people, and where payment may be authorized to a physician for services which may be rendered with equal competence by a dentist, provision be made for payment to dentists on the same basis as to the physician."

K. W. Davey



Ontario Division, Canadian Red Cross Society.

Dr. Davey is a former director of the Dental Department, Ontario Crippled Children's Centre. He is also chief of dentistry, Toronto Hospital for Sick Children, and teaches at the Faculty of Dentistry, University of Toronto. Additionally, Dr. Davey is dental consultant to the Canadian Haemophilia Society and the Ontario Crippled Children's Centre.

Canada and the Provinces

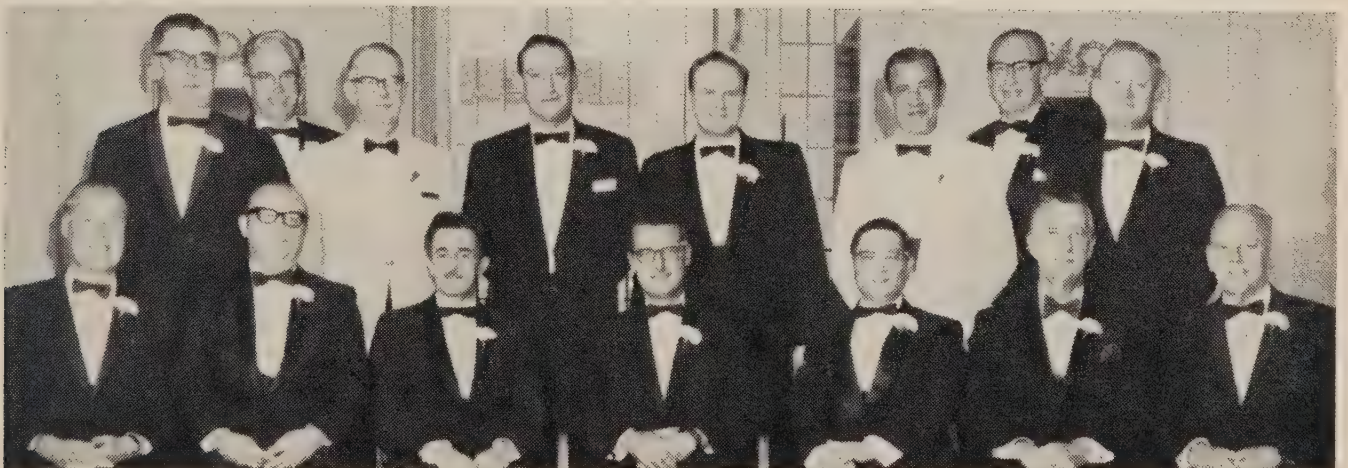
Dr. Davey Named Ontario Red Cross Dental Chairman

K. W. Davey, Toronto, has been appointed chairman of the Dental Committee,

International Items

General Anaesthesia Dilemma in Britain

Britain's dentists are apparently divided over a proposal to amend National Health



Fifteen new fellows were inducted at a convocation of the Canadian section, International College of Dentists, in Vancouver June 26. They are: standing (l. to r.) W. R. Upton, Vancouver; L. E. English, Kamloops, BC; G. E. Decker, Edmonton; R. V. Blackmore, Edmonton; K. F. Pownall, Toronto; C. E. Purdy, Toronto; A. H. Gunning, Victoria; and R. E. Martin, Vancouver; seated (l. to r.) D. B. Ward, Montreal; Max Nacht, Vancouver; Paul Dionne, Joliette, Que.; R. E. Jordan, London, Ont.; S. Wah Leung, Vancouver; R. L. Twible, Toronto; and D. H. Munro, Vancouver.

Service regulations regarding the administration of general anaesthetics for dental patients. An editorial in the *Royal Society of Health Journal* says Britain's health minister hopes to reduce the number of general anaesthetics given and to almost, if not completely, eliminate those administered by single-handed operator-anaesthetists.

More than two million general anaesthetics are given each year in England and Wales for fillings, extractions and surgical operations. Approximately one-quarter of all general anaesthetics administered in NHS practices are given by a single person acting as dentist and anaesthetist. Last year, a medical-dental advisory committee to the Ministry of Health reported that "the administration of a general anaesthetic and the performance of dental surgery require the undivided attention of anaesthetist and operator respectively, and . . . that these roles could not be combined without risk."

Physicians apparently do not want to learn to give dental anaesthetics, whereas dentists are eager to learn. The performance of operative dentistry under intravenous anaesthesia means that it is no longer practical for a medical anaesthetist to come to the dental office, give a quick anaesthetic, and be speedily on his way.

A number of remedies have been suggested. These include the placing of severe restrictions on the use of general anaesthesia for dental purposes, the total elimination of general anaesthesia as an office practice and its transfer to hospitals, and the possible training of paramedical anaesthetists.

Canadian Dentists Invited to Dec. 2-6 New York Meeting

Canadian dentists have been invited to attend the 44th annual Greater New York Dental Meeting to be held at the Statler Hilton Hotel, December 2-6. This year's scientific program offers 10 seminars, 22 essays, 30 registered clinics, 34 clinical demonstrations, 84 table clinics, 40 motion pictures, and 300 exhibits showing the

latest equipment and supplies as well as latest research studies.

For program and reservations, please write to Mrs. Mabel Purdy, Executive Secretary, Room 106A, The Statler Hilton Hotel, New York City, NY 10001, USA.

Canadians Invited to India

Canadian dentists have been invited to participate in the scientific program of the 23rd Indian Dental Conference to be held at Varanasi, India, January 6-9, 1969. For further information regarding the conference and presentation of papers, clinics and moving pictures write to S. J. Vazirani, chairman, Scientific Committee, Indian Dental Association, N-5, Connaught Circus, New Delhi 1, India.

Occlusodontia Academy Will Feature TMJ Management

N. A. Shore, New York City, and D. J. Goodfriend, Philadelphia, will demonstrate the use of various drugs and splints in the management of temporomandibular joint problems at the 13th annual meeting of the American Academy of Occlusodontia February 1, 1969. The meeting will be held at the Essex Inn in Chicago. For further information please write to Francis Higgins, 101 North Evergreen, Elmhurst, Illinois 60126, USA.

Forensic Dentistry Meeting Sponsored by Oral Pathologists

The American Academy of Oral Pathology will schedule its 23rd annual meeting at the Sheraton-Boston Hotel, April 17-19, 1969, in Boston. Part of the program will again be devoted to forensic dentistry.

Canadian dentists are cordially invited to attend the Boston meeting. There is no registration fee. Dentists who wish to present a paper should submit advance copies of the text to Barnet Levy, AAOP Program Chairman, University of Texas

Dental Branch, Institute for Dental Science, P.O. Box 20068, Houston, Texas 77025, USA.

Further information concerning the Boston meeting can be obtained from S. M. Standish, AAOP Secretary, Indiana University School of Dentistry, Indianapolis, Ind. 46202, USA.

Michigan Association Meets in Detroit, April 1969

Canadian dentists have been invited to attend the 112th annual meeting of the Michigan Dental Association at the Statler Hilton Hotel, Detroit, April 20-23, 1969.

Applications are now being accepted to participate in the Michigan Association table clinic program. Applicants should write to D. A. Wacker, Route 1, Box 22, Battle Creek, Michigan 49017, USA. Information on the table clinic subject to be presented and equipment required should be included.

Postgraduate Courses Offered in New York

The First District Dental Society of New York will offer a variety of short postgraduate refresher courses during the fall and winter months. Further information may be obtained from J. J. Adelson, First District Dental Society, Statler Hilton Hotel, 7th Ave. and West 33rd St., New York, NY 10001, USA.

Graduate Periodontology Program Offered in Cleveland

The School of Dentistry and the Graduate School of Case Western Reserve University, Cleveland, Ohio, has announced the availability of a two year (24 month) postdoctoral program in periodontology. This program of biological and clinical science studies, combined with research and intensive specialty training, leads to the master of science degree. The course

provides excellent opportunities for students oriented toward clinical or research-academic careers.

Applications are now being accepted for the course beginning July 1, 1969. For further information, please write to the Coordinator of Graduate Studies, School of Dentistry, Case Western Reserve University, 2029 Adelbert Road, Cleveland, Ohio 44106, USA.

Dental Organizations

Dr. Pentz New Registrar for Nova Scotia Board

D. G. Pentz, Halifax, has been named registrar-secretary of the Provincial Dental Board of Nova Scotia. He succeeds G. M. Dewis, Halifax, who retired May 31 after 28 years in office. Dr. Dewis is also treasurer of the Canadian Dental Association.

BC Dentists Elect Dr. Reid

J. F. Reid, North Vancouver, was recently elected president of the British Columbia Dental Association. He succeeds A. E. Swanson, Vancouver.

Dr. Reid, who also teaches at the University of British Columbia, is one of two dentists from BC on the Board of Governors of the Canadian Dental Association.

Canadian Dental Schools

Eight Staff Appointments Announced at Saskatchewan U.

K. J. Paynter, dean of the University of Saskatchewan's College of Dentistry, has announced the appointment of eight new staff members.

C. W. B. McPhail, head of the Department of Social and Preventive Dentistry, was formerly assistant to the dean and head of the Department of Preventive and Community Dentistry at the Univer-

sity of Alberta, Edmonton. He holds a master of science degree in paedodontics from Northwestern University and recently earned a second master's degree in statistics and epidemiology.

J. H. Sinclair will join Saskatchewan's faculty next year as head of the Department of Oral Diagnosis. He comes from Otago University, Dunedin, New Zealand, where he earned a master degree in dental surgery, specializing in oral surgery. Professor Sinclair also holds a fellowship in dental surgery from the Royal College of Surgeons of England.

J. B. Gavin, who also came from New Zealand, is associate professor of anatomy. He was senior lecturer in basic dental sciences at the University of Otago. Dr. Gavin holds two dental degrees and a PhD in anatomy.

Eugene Kaellis, associate professor of oral biology, came from the Bristol Myers Company in New York where he was a senior research scientist. He has taught at New York University where he earned dental, bachelor of science (chemistry), master of science (biology), and PhD (biology) degrees.

A native of Saskatoon, R. D. Hazelton has been appointed assistant professor of orthodontics. He graduated from the University of Alberta and practised with his father, L. D. Hazelton, from 1960 to 1962. Dr. Hazelton subsequently earned a diploma in orthodontics and an MScD in experimental embryology from the University of Toronto where he has been teaching and doing research.

Named part-time assistant clinical professor of dentistry is T. M. Curry, Regina, who is also the provincial dental director for Saskatchewan. He was previously director of dental services with the Calgary health department. Dr. Curry has also served with the department of health in Newfoundland, the city health services in Oslo, Norway, and has practised in London, England. He is a dental graduate of University College, Dublin, and holds a DDS and a diploma in dental public health from the University of Toronto.

A lecturer in prosthetic dentistry at New Zealand's University of Otago since 1962, C. P. Geary becomes assistant professor of oral biology. He will obtain a PhD degree this fall.

P. B. Innes also came from the University of Otago, Dunedin, New Zealand, where he was a lecturer in basic dental sciences. The holder of a master of dental surgery degree, he is assistant professor of anatomy at the University of Saskatchewan.

Royal Canadian Dental Corps

Six Officer Cadets Win Awards

Officer cadets from various Canadian dental schools completed their summer training at the Royal Canadian Dental Corps School, Canadian Forces Base Borden, Ont., with graduation ceremonies on August 8. Summer training is a requirement of the Corps' dental officer subsidization plan.

Brig.-Gen. B. P. Kearney, Director



Col. L. G. Craigie was recently appointed commandant of the Royal Canadian Dental Corps School, Canadian Forces Base Borden, Ont. For the past two years he has been director of staffing and training for the Corps.

General of Dental Services, was reviewing officer when achievement awards were presented to six cadets.

Winners in the third phase of subsidized training were Second Lt. **J. C. Steel**, University of Alberta, honour cadet, and Second Lt. **J. M. Cherun**, Dalhousie University, runner-up. Second Lt. **R. Y. Gish**, University of Alberta, was awarded the Chief Instructor's Trophy.

Second Lt. **F. V. R. Jackson**, Dalhousie University, was the second phase winner. The runner-up was Second Lt. **F. R. Margetts**, University of Alberta.

Second Lt. **J. J. J. Lemieux**, Université de Montréal, was named honour cadet in the first phase.

Economics

Dentists Again Fourth Highest Earners in 1966

Dentists' 1966 incomes averaged \$17,212—up \$1,519 over the 1965 average of \$15,693—making them the fourth highest income earners that year. Figures released by the Department of National Revenue show physicians at the top of the income ladder (\$24,993), followed by engineers and architects (\$21,200), and lawyers and notaries (\$21,045).

Medicine has been the most remunerative occupation in Canada in recent years, but it was only in 1965 that engineers and architects edged ahead of lawyers and notaries into second place.

The engineers and architects appear to be closing in on the physicians, too. In 1965, physicians stood \$3,951 ahead of engineers and architects, but the latter reduced the margin to \$3,773 in 1966.

New By-law for Specialists in Alberta

The revised by-laws of the Alberta Dental Association contain a new provision governing specialists and specialization. This by-law in part states that a specialist must take out an annual specialist's licence and must limit his practice to his

specialty. Each specialist's licence must be renewed every five years. To qualify for renewal, the specialist must provide evidence of completion of a minimum of 200 hours of lecture, clinical and laboratory training in each five year period of a nature acceptable to the Alberta Dental Association's Specialists and Specialization Committee.

New Fee Schedule in Saskatchewan

The Saskatchewan College of Dental Surgeons has reportedly introduced a new schedule calling for an average increase of 25 per cent in dental fees. It will bring dentists' charges into line with those elsewhere on the Prairies.

The revision provides for a two and a half per cent a year increase since the last major revision in 1958. Minor revisions to the fee schedule were made in 1963.

The new schedule was developed after a year and a half study by a five member committee. Canadian Dental Association statistics on fee experience across the country were used in determining the new schedule. The schedule is based on the relative value system.

Swift Current May Tax to Support Dental Program

The Swift Current Health Region of Saskatchewan may levy a personal tax in order to sustain the region's dental program. According to the *Swift Current Sun*, permission has already been obtained from the provincial health minister to levy a dental tax. The special levy may amount to \$12 per family and \$6 for single persons.

The health region's dental program, which began in 1947, has hitherto been financed through utilization fees levied locally. However, when the Saskatchewan government instituted province-wide utilization fees for medicare, this source of revenue was lost.

The dental program provides dental care, excluding orthodontic treatment, for children 1-12 years of age. The health re-

gion has five dentists on staff: two in Swift Current and one each in Leader, Maple Creek and Shaunavon. Surplus patients and emergency cases are treated by private practitioners who are reimbursed by the health region for 80 per cent of treatment costs.

Four Million Americans Covered by Dental Insurance

More than four million Americans now are covered by dental insurance, according to a survey by the US Health Insurance Institute. The largest providers of dental insurance are private insurance companies, with more than 1.7 million people on their rolls. Next are the various dental service corporations which insure more than 1.3 million.

Dental coverage is one of the fastest-growing in the insurance field, according to HII records. The coverage — mostly provided under group plans — paid benefits of \$41.6 million by the end of 1967. The number of employees covered under group dental plans has nearly quintupled since 1963.

Second Multi-State Dental Service Prepayment Program Announced

The US National Association of Dental Service Plans has announced the successful negotiation of a second multi-state dental prepayment program that will cover individuals in an 11 state area.

The Ohio State Dental Care Corporation, on its behalf and on behalf of participating plans in California, Illinois, Michigan, Pennsylvania and West Virginia, has contracted with the Dental Division of Litton Medical Products Inc. to administer a dental care program for its employees and dependants.

Research

Oral Surgeons Hold TMJ Conference

Arthritic and emotional factors in temporomandibular joint disease were dis-

cussed at a conference sponsored by the American Society of Oral Surgeons, July 1-2, in Chicago.

Degenerative arthritic diseases such as osteo-arthritis are often painless and patients are unaware of the presence of the disease, said J. G. Mayne (Mayo Clinic). Inflammatory diseases, like rheumatoid arthritis, produce symptoms which are not always associated with the TMJ. Patients often misinterpret the symptoms as being due to disease of the ear or trigeminal or glossopharyngeal neuralgias, he pointed out. Approximately half of all adult arthritis patients have TMJ involvement, he noted, and many of these TMJ cases are undiagnosed.

Two members of the University of Illinois TMJ Research Centre described emotional factors in diseases of the TMJ. Daniel Laskin said that tension is the underlying factor in most TMJ patients. Tension is caused by muscle spasm which arises (1) by muscular over-extension, (2) by over-contraction, or (3) from muscle fatigue. The resultant spasm then produces jaw displacement. This, in turn, can ultimately cause occlusal interferences due to the shifting of teeth, degenerative joint disease due to condylar shift, and contracture due to persistent muscle spasm. Thus, what begins primarily as a functional condition ultimately can result in organic change.

Dr. Laskin said that muscle fatigue is the primary source of muscle spasm. Such fatigue is predominantly related to the presence of a tension-relieving oral grinding or clenching habit. The pain-dysfunction syndrome is thus essentially a psychosomatic disease. A permanent cure for TMJ disorders is not possible in some individuals since the initiating factor, tension, cannot be controlled adequately.

D. E. Lupton, chief psychologist at the TMJ Centre, described the typical sufferer of TMJ pain as a woman, in her forties, who is highly nervous, worried, suspicious and easily angered. Discussing some of the patients seen at the centre, he said "one thing stood out clearly about these patients; their inability to separate themselves from the first important relationship was apparent. The patients were usually drawn to relationships with pas-

sive and insecure persons, thus giving themselves the illusion of strength. Their temporomandibular joint dysfunction served the purpose of casting them into a dependent relationship with people they normally managed."

New Substance Destroys and Inhibits Plaque

An American research scientist has shown how an as yet unnamed antibiotic fermentation product from a strain of streptomyces can alter the intra-oral behaviour of saliva, micro-organisms, food and tooth surfaces so that little or no plaque accumulates on teeth. The substance was demonstrated at the Fourth International Conference on Oral Biology in Copenhagen July 15-17. A mouthwash containing less than 0.01 per cent of this substance and used twice daily for 30 seconds is about 70 or more per cent successful in removing existing plaque and preventing new plaque deposition. The material, which is said to be non-toxic, not absorbed by the human body and which apparently does not disturb the interrelationship of oral micro-organisms may present future clinical possibilities.

Electronmicrographs shown by Bernard et al (Los Angeles) showed that calcification can occur in or about collagenous material which then seems to break down and disappear.

Silverstone (Bristol) demonstrated by polarized light microscopy that carious lesions can recalcify in an appropriate milieu. His electronmicrographs showed crystals of mineral which had apparently reformed in the 'empty' spaces caused by caries around so-called enamel prisms.

Fluoridation

BC Has Worst Teeth, Says Vancouver Dentist

A Vancouver public health dentist says that British Columbia has the country's worst tooth decay, least water fluoridation, and toughest anti-fluoridation laws.

S. J. Gallagher, director of the Dental Division of the Vancouver Health Department, said only 6.2 per cent of British Columbians drink fluoridated water, compared to nearly a third of all Canadians and a similar proportion of Americans.

Among cities, only St. John's, Newfoundland, has poorer dental health than Vancouver, Dr. Gallagher said.

British Columbia's anti-fluoridation laws are the toughest in North America. This is the only place where a plebiscite on fluoridation needs a three-fifths majority to pass, he added.

Vancouver votes December 11 and other adjacent municipalities December 14 on whether to fluoridate the local water supply.

Delaware Institutes Compulsory Fluoridation

In early June fluoridation became law in Delaware, the fourth American state to take legislative action on the public health measure.

Connecticut was the first state to pass a law, in 1965, requiring fluoridation of all towns over 20,000 in population. By mid-May of this year, Connecticut was only eight towns short of fully implementing this requirement.

Public Health

Dr. Grey Appointed to New York State Post

H. S. Grey, Toronto, has been appointed assistant director of dental services, Bureau of Dental Health, New York State Department of Health, Albany, NY. The appointment was effective September 26.

Dr. Grey has long been active in the Toronto Department of Public Health, first as a part-time clinician 1948-58, later as assistant director of dental services 1959-60, and latterly as director since 1960. He received his DDS degree from the University of Toronto in 1939 and earned a

diploma in dental public health from the same university in 1959.

Dr. Grey will be succeeded by James McGaughey, currently assistant director of dental services.

Awards and Honours

The Canadian Centennial Medal, conferred in recognition of valuable service to the nation, has been awarded to **H. G. Walton-Ball** of Toronto. Dr. Walton-Ball is a past president of the Governor Simcoe Branch and of the Dominion Council of the United Empire Loyalists Association. He represented the UEL two years ago at a ceremony transferring John Graves Simcoe's burial place at Wolford Chapel, Devonshire, England, to the province of Ontario.

Deaths

Campbell, James Erskine. 61. Streatham, England. Dalhousie University. 5-7-68. Survived by Eve (wife); Nigel and Roderick (sons); Mrs. Roderick Campbell (mother); and Mrs. F. G. Cooke (sister). Associate member Canadian Dental Association.

Chaussé, Ernest. 79. Verdun, Qué. Université de Montréal, 1917. 29-6-68.

Decarie, J. W. Noël. 75. Montréal. Université Laval, 1918. 17-7-68. Survécut par Marguerite (épouse); Mme Roger Beauchemin (fille); deux frères; deux soeurs; et quatre petits-enfants.

Guimond, Thomas. 73. Montréal. Université de Montréal, 1924. 23-7-68. Survécut par Armandine (épouse); les Drs Jean et Pierre et Benoit (fils); Thérèse (fille); Oscar et Josaphat (frères); et quatre petits-fils.

Jones, Raymond C. 82. Brandon, Man. Loyola University, Chicago College of Dental Surgery, 1913. 24-4-68. Survived by Raymond R. (son).

Miller, Alan Aubrey. 42. Abbotsford, BC. University of Alberta, 1950. 31-7-68.

Monat, Massue. 64. Montréal. Université de Montréal, 1929. 31-7-68. Survécut par Marie (épouse); Jean, Henri et Paul (fils); Mme Maurice Payette, Mme Robert Chapeleau et Mme Jean Jacques Patenaude (soeurs).

Sanders, W. J. 84. Brandon, Man. Royal College of Dental Surgeons of Ontario, 1907.

Wellington, Charles William. 74. Moose Jaw, Sask. Northwestern University, 1923. 20-8-68. Survived by Ruth (wife); Mrs. David Redford (daughter); Mrs. J. R. Nicoll (sister); and two grandchildren.

Chatelaine Carries Preventive Dentistry Article • The October issue of *Chatelaine* contains an article on "Preventive Dentistry" by Joan Nankivell. Dentists may recommend the article as a useful source of information on methods of preventing tooth decay.

Orthodontic Treatment Priority Index

Washington, US Department of Health, Education and Welfare. National Centre for Health Statistics. *Vital and Health Statistics. PHS Publication No. 1,000, Series 2, No. 25, 1968. 49 p. \$0.40*

This report describes the development of the Treatment Priority Index (TPI), an objective method designed to measure the prevalence and the relative degree of handicap associated with malocclusion. Since the components of the TPI are similar to measures obtained in the Cycle II US Health Examination Survey of children 6-11 years old, the US National Centre for Health Statistics has followed this ongoing research of the University of Toronto at the Burlington Orthodontic Research Centre.

The interrelationships of 10 features which separately or in combination characterize most malocclusion were studied in 375 children. These 12 year old children, who had no history of previous orthodontic treatment, were examined initially by two orthodontists. Scores reflecting a professional appraisal of the severity of malocclusion present in each child were assigned ranging from 0 for those with no malocclusion to 10 for the most severe cases. Objective measurements were also taken. In order to transform these objective measurements into values which corresponded to the scores given by the orthodontists, a series of weights and constants was computed by multiple regression analysis. When applied to the objective measurements, these weights and constants resulted in single numbers, or index scores, which were in good agreement with the orthodontic evaluations ($r=+.795$). An earlier attempt to derive suitable weighing factors by factor analysis was useful in revealing the interrelationships of various specific measurements. Distributions by specific ages of several manifestations of malocclusion are presented in 10 detailed tables for both the Burlington Project and Health Examination Survey trial data. Six detailed tables also distribute the TPI for a Burlington serial control group.

The 10 different characteristics of maloc-

clusion incorporated in the TPI are defined in an appendix. Additional appendices relate the definition of malocclusion syndromes by factor analysis and the development of the regression equation. Also included is an IBM 7010 Fortran computer processor program which may be used to convert examination findings into index scores.

Natalie Freeman

Mouth Rehabilitation: Clinical and Laboratory Procedures

Max Kornfeld, Vol. 1 & 2. St. Louis, C. V. Mosby Company, 1967. 619 p. Illus. \$58.90

Max Kornfeld's two volumes on *Mouth Rehabilitation: Clinical and Laboratory Procedures* are a meticulous compilation of knowledge accumulated over many years by a dedicated teacher and practitioner of dentistry. The author states that he has been exposed to various philosophies and has treated sufficient cases so that results can be evaluated properly. The information in the chapters that follow substantiate this claim.

The texts are enhanced by contributions from other reputable authors and by an up-to-date bibliography. The sections on hinge-axis and pantograph registrations were written in collaboration with Charles Stuart and Harvey Stallard. Victor Lucia contributed a chapter on centric relation, and Morton Amsterdam is quoted frequently in the chapter on prosthetic-periodontic interrelationships. The chapter on functional preparation contains many of Dr. Kornfeld's personal contributions. It is characterized by a logical approach to the choice and design of retainers. The author discusses pertinent subjects such as tripodal stabilization of castings, proper margin placement, importance of bevels, restorations for pulpless teeth, partial coverage retainers, full coverage retainers, and porcelain jacket crown preparations. The techniques are sound and the illustrations are clear.

The chapter on impressions includes a good discussion about hydrocolloid technique and tissue displacement. Impression taking with thiocol and silicones is covered adequately but in less detail and with fewer personal contributions by the author. Last, the copper tube modelling compound impression method is presented for full veneer crowns where retraction is not possible.

The laboratory procedures are described in sufficient detail to guide a dental technician or a dentist doing his own laboratory work. The equipment, materials and methods are up-to-date. All kinds of dental castings are covered, including ceramic gold alloys. The author's flexibility in the use of various restorative materials is refreshing and not typical of many of the more mature specialists of mouth rehabilitation. The case

presentations provide a detailed approach to the treatment of a variety of cases.

Dr. Kornfeld's two volumes are particularly recommended for recent graduates or dentists who possess no other rehabilitation texts. Those who follow the literature may find much of the text redundant — especially the chapters contributed by other authors — since this material has already been adequately covered elsewhere. The total package is, nevertheless, valuable, interesting, and a credit to the author.

Harry Rosen

Clinical Dental Hygiene

Shailer Peterson. Ed. 3. St. Louis, The C. V. Mosby Company, 1968. 429 p. Illus. \$13.00

Clinical Dental Hygiene is the most recent in a series of textbooks on the clinical practice of dental hygiene. The entire format of the third edition has been changed. Twenty-four chapters are included in this edition. Some are by Peterson himself; the rest are written by 27 contributors selected by Peterson for their qualifications and experience as dental hygiene educators.

The chapters follow in a sequence that is logical and meaningful for dental hygiene students, beginning with an introductory chapter on the dental hygiene profession and

ending with a realistic prediction of the dental office of the future. Others deal with the hygienist and her employer, the hygienist and her patient, the concept of the dental health team, professional responsibilities, and the hygienist's role in her community. These chapters furnish a unique yet realistic concept of what it means to be a dental hygienist.

Unfortunately, the description of some of the hygienist's clinical and educational duties is too brief. Topics like oral hygiene instruction, principles of dental health education, and nutrition counselling are not adequately treated.

On the other hand, the book deals extensively with basic bookkeeping and office administration. Dental hygiene education is also given considerable attention. For example, several pages are devoted to a discussion of preclinical technique laboratories, use of manikins, artificial calculus, and the transition to clinical practice education. Such information is useful to the dental hygiene educator; but to the student or practising hygienist, this material may seem extraneous.

The chapter on licensure and licensing examinations deserves special mention. Included is a list of persons to contact for information about dental hygiene licensure in the United States. This is invaluable for Canadian hygienists wishing to move to any part of that country.

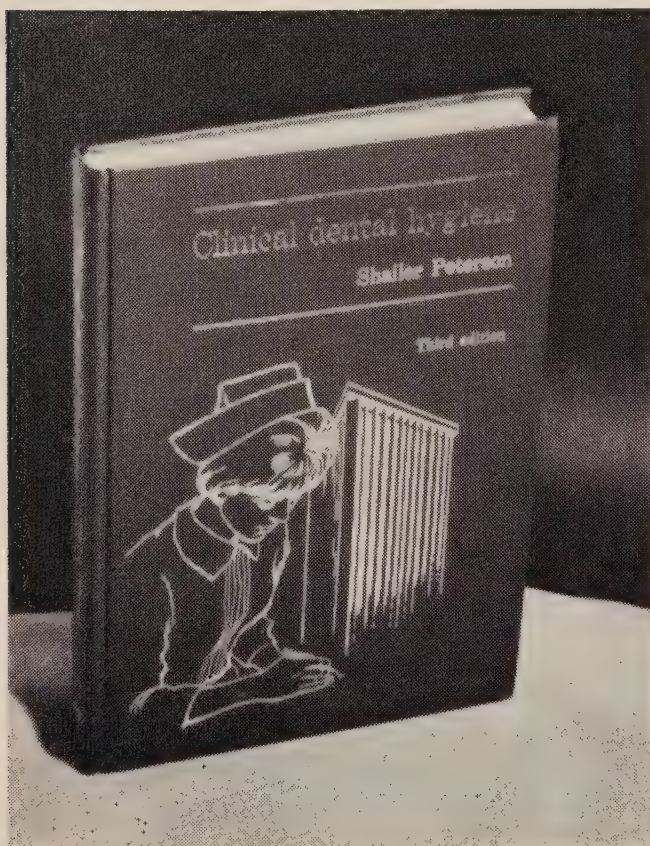
Dr. Peterson and his colleagues have produced a very useful book for the student of dental hygiene. It imparts not only factual material, but an inspirational and comprehensive picture of the dental hygienist, including all aspects of her role in the dental profession.

Linda Farley

The Non-Acid Complexing Theory of Dental Caries

H. E. Lura, Holbaek, Denmark. 1967. 49 p. \$1.50

This monograph tries to document the experimental evidence in support of a non-acid complexing mechanism for the initiation of dental caries. The author bases his text on "three facts in caries aetiology:" (1) "that bacteria, especially sucrophilic, polysaccharide-synthesizing and phosphate-requiring streptococci, are a prerequisite for caries formation;" (2) "that sucrose above a 20 per cent concentration is bacteriostatic, complex-forming and cariogenic, while low sucrose concentrations (1-15 per cent) are non-cariogenic even though they promote glycolysis in the dental plaque;" and (3) "that the initial caries lesion is associated with a neutral or alkaline pH." The author attempts to support these facts by drawing on various



studies, mostly his own. This is accomplished in several highly disjointed chapters ranging from a discussion of "biological views of sugar and dental caries" to an appendix containing suggestions for future caries research.

Lura begins by discussing the cariogenicity of different carbohydrate foods. He contends that low sucrose concentrations (1-15 per cent) are non-cariogenic while those exceeding 20 per cent are highly cariogenic. He supports this claim by stating that populations which ingest low concentrations of sucrose do not have any dental caries. This conclusion runs counter to the numerous studies which have disclosed low levels of caries activity in man from the earliest ages. Such studies point to the presence of a cariogenic component in natural foods containing low levels of sugar. Lura also claims a relationship between the mechanism whereby higher concentrations of sucrose cause dental caries and the capacity for complex formation by sugar, sugar esters and calcium of the enamel. He further suggests that inorganic phosphate of enamel is dissolved by a non-acid enzymatic mechanism (phosphorylation) or by a "carbamate" reaction. One source of supporting evidences for this view is to be found in a table which summarizes the dissolving action of refined beet sugar on hydroxylapatite at pH 7.5 adjusted by sodium carbonate. This table is difficult to interpret because it contains no control values. We know, furthermore, that carbonates may complex with calcium and thereby cause a solubilizing effect. It is therefore impossible to separate the complexing effect of carbonate from sucrose.

According to the author, phosphorylated derivatives of carbohydrate metabolism (hexasphosphates, pyrophosphate, triphosphates) are also chelating agents that are important in the dissolution of tooth enamel. Yet phosphorylated products of carbohydrate metabolism are mainly intracellular compounds; it is therefore difficult to conceive how viable bacteria can participate in the chelation of teeth by this mechanism. Lura also mentions many phosphate-requiring bacteria in the plaque which may utilize apatitic phosphate. Saliva contains much inorganic phosphate; why is this not the source of phosphate in the bacterial metabolism rather than teeth? Lura's reference to the caries-potentiating effect of synthetic chelators such as EDTA is, of course, irrelevant since substances with such chelating powers are not produced by biological systems.

Lura's observations about the importance of cariogenic and polysaccharide-synthesizing streptococci is very timely. Current investigations may clarify the role of dextran and related substances in plaque formation and the mechanism by which these substances may potentiate dental caries. Lura also suggests that metaphosphates and subagents are elaborated during polysaccharide synthesis. These products, he says, dissolve calcium salts from the enamel and constitute the primary mechanism for dental caries. This ex-

planation must await further documentation.

The author's reference to fluorides is rather whimsical. He contends that "the strange attention which for the last 20 years has been paid to the problem of fluoride and which has resulted in the appearance of thousands of dissertations and papers costing a terrible waste of time and money must be denounced aimless and a complete failure. The fluoride is a rather unimportant detail in the total caries research as long as we do not even know the mechanism of its prophylactic effect." This statement overlooks significant work on the role of fluoride in the prevention of dental caries. The claim that fluoride is unimportant unless we fully comprehend its mechanism fails to do justice to the many studies which have improved our understanding of its action. If it had any validity, Lura's argument would likewise proscribe penicillin as an antibiotic, since we do not know the mechanism of its prophylactic effect, and vitamin C because we do not know how it works. Fortunately, we can utilize beneficial compounds that have proven safe and effective even though their action may not be fully understood for years to come.

Some interesting ideas are expressed in this book, but these are clouded by broad generalizations based on inadequate proof. Perhaps the author is trying to say that the final word about dental caries has not been printed. Unfortunately, such is not the tone of his book, for it vigorously espouses a mechanism of dental caries for which experimental proof is meagre.

Gordon Nikiforuk

Total Loss of Teeth in Adults, United States, 1960-1962

US Department of Health, Education and Welfare. National Centre for Health Statistics. Vital and Health Statistics. PHS Publication No. 1000, Series 11, No. 27. Washington, 1967. 24 p. 25 cents

Estimates of the prevalence and distribution of edentulous persons are presented in a new report from the US National Centre for Health Statistics. Based on examinations administered as part of the American health examination survey during 1960-62 to a national sample of noninstitutionalized adults aged 18-79, the findings are related to age, sex, race and various other demographic characteristics.

The data show that an estimated 20.1 million American men and women, or 18 out of every 100, had lost all of their permanent teeth. The proportion of edentulous persons increased rapidly as age increased, rising from about 1 in 100 among the youngest men and women to as many as 1 in 2 among those 65 years of age and older. Within any given age group, relatively more women than men were edentulous and relatively more white than Negro adults. As levels of

education and income increased, the prevalence of men and women without teeth decreased.

Detailed tables provide actual and expected prevalence rates of edentulous persons by race, sex, age, family income and education; by geographic region, population size group and urban-rural residence; and according to satisfactory, defective or incomplete dentures. Tables showing the percentage of persons who should be edentulous by race, sex, age and family income are also presented. Survey methodology, general qualifications of the data, and definitions of terms are covered in appendices.

Natalie C. Freeman

The Science of Dental Materials

E. W. Skinner and R. W. Phillips. Ed. 6. Philadelphia and London, W. B. Saunders Company, 1967. (Available from McAinsh & Co. Limited, Toronto) 670 p. illus. \$16.20

Dentists need reliable information about the nature and behaviour of dental materials — particularly the newer restorative materials and hard tissue cutting devices. The sixth edition of this book fulfills this need by combining the theoretical and practical considerations of dental materials science.

The general arrangement of the earlier editions has been maintained in the present edition. The content of the chapters has, however, been modified and amplified in accordance with the most recent advances and investigative procedures.

Noteworthy are the updated concepts about the structure of matter, expansion of the chapter on porcelain and extended discussion of metallurgy. The most recent developments in amalgam, resin restorative materials and direct filling golds are described as is the role of cavity liners, bases and pulp protection.

Graphs, tables and illustrations liberally support the text. Carefully selected references in each chapter direct the reader to the most recent and important publications associated with the subject matter. The authors have, moreover, contributed freely from their own research efforts.

We are indebted to the late Dr. Skinner, the originator of this series of textbooks, who

did so much to elevate the science of dental materials to its present level. Dr. Phillips, who collaborated in the fifth and sixth editions and assumed full responsibility for publication of the latter, deserves equal praise. This book is an excellent text for students and dentists.

Z. Kasloff

Compendium of Pharmaceuticals and Specialties (Canada) 1968

F. Norman Hughes and G. N. Rotenberg. Ed. 4. Toronto, Canadian Pharmaceutical Association Inc., 1968. 1013 p. \$12.50 (reg. price), \$6.50 (dentists)

This latest edition of Canada's most authoritative reference text on pharmaceutical products again describes virtually every Canadian prescription drug and specialty product in alphabetical sequence. Apart from the physical and quantitative specifications of its formula, each drug is described in terms of indication, administration, contra-indications, side actions, precaution and supply. A therapeutic category is shown for each pharmaceutical or specialty.

The *Compendium* includes several useful, completely revised and updated sections on coloured pages. The pink pages (Prescribers Guide and Therapeutic Index) list manufacturers' products under therapeutic headings. The green pages section (Non-proprietary Names Index) links generic names with the chemical names and brands and their manufacturers. The buff pages (Trade Names Index) show for each listing a generic name and are the reverse listing of the green pages section.

A white reference section at the back of the book contains a list of Canada's poison control centres, a Latin prescription terminology and *Compendium* abbreviations, information on calculation of drug dosage in children, and other useful references.

A French addendum to the *Compendium* is in preparation and will be available to French-speaking practitioners early in September. The Canadian Pharmaceutical Association will also continue to publish annually completely revised editions of the *Compendium*. The book remains Canada's most reliable reference on drug preparations.

F. H. Compton

Additions • Acquisitions

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BOURNE, J. G. Studies in anaesthetics: including intravenous dental anaesthesia. London, Lloyd-Luke (Medical Books) Ltd., 1967. 166 p. \$4.75

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CENTRE FRANCAIS DE DOCUMENTATION ODONTO-STOMATOLOGIQUE. Notices signalétiques des travaux originaux d'odonto-stomatologie de langue française, 1965. Paris, France, 1967. 75 p. 20 francs

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Quarterly report

31-8-68

Rapport trimestriel

	Unit value Valeur unitaire	Unit value Valeur unitaire	Unit value Valeur unitaire	
	31-8-68	31-8-67	31-8-63	
Government Bond Fund	\$13.809	\$13.849	\$12.231	Fonds d'obligations gouvernementales
Corporate Bond Fund	14.913	14.819	12.976	Fonds d'obligations corporatives
Common Stock Fund	24.786	22.136	15.661	Fonds d'actions ordinaires

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Toward the cashless and chequeless society

Bankers are now testing the components of a new medium of fiscal exchange which could eventually displace nearly all cash transactions and payments by cheque. When fully operational, the system may even substitute instantaneous payment for the conventional cash and credit transactions conducted in the dental office. Credit, says D. L. Markstein,¹ would then be nearly universal, payments instantaneous, and cash used only for transit fares, vending machines or buying a cigar.

Speeding the transition toward a chequeless society is the banks' mounting volume of paperwork which threatens to strangle economic progress. This avalanche of paper impedes the rate at which money on deposit 'turns over.' Many economists consider an accelerated money turnover as one of the keys to tomorrow's more sophisticated and affluent world. Any bottlenecks, they contend, must be swept aside and the answer lies in electronic banking.

Markstein describes how such a system might work. The banks would join in an international exchange of fraud-proof credit cards and would honour each others' cards at member service establishments. These establishments would include retail stores, utilities, insurance companies, medical and dental practices, industrial organizations, government agencies—in fact, just about any kind of enterprise which offers goods or services to the public. Each establishment would have direct on-line communication with computers in the banks. Similar links would interconnect computers in the various banks. Each service establishment would have one or more inquiring terminals and the whole system would have literally thousands of these terminals performing a man-machine interface in stores and offices. When a consumer presents his credit card in a store, the sales clerk could then obtain from the bank of account an instantaneous commitment to pay. If the sale were consummated, information would pass through the store's terminal to the computer and the store's bank account would be immediately credited in the appropriate amount. No paper, other than a signed transaction slip, would change hands. There would be no cancelled cheque. Instead, the bank's ledgers or statement of account would certify receipt for payments made.

It is not difficult to visualize the application of electronic banking in a dental practice. A patient, her treatment completed, presents her credit card to the receptionist who fits the card to a terminal in a special receptacle on her desk. Instantly, an impulse travels to a computer in the patient's bank on the other side of town. The computer scans her ledger, verifies the adequacy of her balance, and debits her account in the amount of the dentist's fee. The computer then triggers another impulse which travels to a second computer located in the dentist's bank which in turn credits his account. The entire circuit takes con-

siderably less time than would be needed for the patient to write a cheque, mail it and secure a receipt. And for the dentist, electronic banking converts accounts receivable into cash.

It may sound visionary, but chequeless banking could become a reality by 1970 if dentists will prepare themselves for the new credit and cash handling system. At least one dental organization, the Louisiana Dental Association, has taken the first step in this direction by issuing guidelines which interpret the application of its code of ethics to the acceptance of credit cards.² The Louisiana association prohibits the listing by a credit card company of dentists who will accept credit cards. It bars the display of emblems outside a dentist's office to signify that he will accept such cards. Louisiana dentists, moreover, must not encourage their patients to participate in a credit card program. And they must not, because of their own participation, increase their fees.

Some of these injunctions are also implicit in the Canadian Dental Association's code of ethics. Our code forbids direct or indirect solicitation of patients. It also prohibits the listing of a dentist's name in commercial advertising directories unless such directories include on like terms and without discrimination the names of all licensed practitioners in the area served by the directory.

How well these strictures are understood by our members and whether they are compatible with the new technology is something else, however. Perhaps it would be well to re-examine them now, while there is ample time to look ahead.

1. Markstein, D. L. How the "checkless society" will affect you. *Dental Economics* 58:27, August 1968.
2. Brown, E. T. BankAmericard and dental ethics. *New Orleans Dental Association News of Dental Activities*. Vol. 5: No. 6: p. 3, September 1, 1968.

Une société sans chèques ni argent?

Les banquiers essaient actuellement un nouveau système d'échange monétaire qui pourrait éventuellement supprimer presque toutes les transactions comptant de même que les paiements par chèque. Lorsqu'il fonctionnera pleinement, ce système pourrait même substituer le paiement instantané aux transactions habituelles comptant et à crédit, qui se font dans les cabinets dentaires. Le crédit, a déclaré M. D. L. Markstein,¹ serait alors presque universel, les paiements seraient instantanés et l'argent ne servirait plus guère que pour les transports en commun, les distributeurs automatiques ou pour l'achat d'un cigare.

C'est la menace que constitue pour le progrès économique l'accumulation croissante de paperasse dans les banques, qui accélère cette évolution vers une nouvelle société sans chèques. Cette avalanche de papier ralentit le rythme auquel roule l'argent déposé. De nombreux économistes considèrent un roulement accéléré de l'argent comme l'une des clés du monde de demain. Tout embouteillage pensent-ils, doit être éliminé et la solution, c'est la banque électronique.

M. Markstein explique que les banques adhéreraient à une bourse internationale de cartes de crédit à l'épreuve des fraudes, et honoreraient mutuellement leur carte dans les établissements qui en seraient membres. Ces établissements comprendraient les magasins de détail, les services publics, les compagnies d'assurance, les pratiques médicales et dentaires, les organisations industrielles,

les agences gouvernementales, en fait toutes les entreprises qui offrent des marchandises ou des services au public. Chacun de ces établissements serait en communication directe avec les ordinateurs des banques, et des liens semblables relieraient entre eux les ordinateurs des différentes banques. Chaque établissement aurait un ou plusieurs centre(s) de communication et le système total comporterait littéralement des milliers de centres établissant un réseau homme-machine dans les magasins et les bureaux. Lorsqu'un client présentera sa carte de crédit dans une boutique, le vendeur pourra obtenir immédiatement de la banque qui détient le compte, l'engagement instantané de payer. Si la vente est conclue, le bureau du magasin passera directement ce renseignement à l'ordinateur et le compte en banque du magasin sera crédité immédiatement du montant en question. Aucun papier ne changera de main, si ce n'est un bordereau de transaction signé. Il n'y aura pas de chèque annulé. A leur place, les livres ou les états de compte de la banque feront foi des paiements reçus.

Il n'est pas difficile d'imaginer l'application des transactions bancaires électroniques à la pratique dentaire. Un patient, son traitement terminé, présente sa carte de crédit à la réceptionniste qui la placera dans un réceptacle spécial, qui fonctionne comme centre de communication. Une impulsion part instantanément de là pour aller vers l'ordinateur de la banque du patient, à l'autre bout de la ville. L'ordinateur vérifie le compte, s'assure que le solde est suffisant et le débite du montant des honoraires du dentiste. L'ordinateur envoie alors à son tour une impulsion vers un deuxième ordinateur situé dans la banque du dentiste pour que le compte de celui-ci reçoive le crédit voulu. Ce circuit prendra beaucoup moins de temps qu'il n'en faut au patient pour écrire un chèque, l'envoyer et recevoir un reçu. Quant au dentiste, grâce au système de transactions bancaires électroniques, il verra ses effets à percevoir devenir immédiatement de l'argent.

Cela peut sembler être le rêve d'un visionnaire mais les transactions bancaires sans chèques pourraient devenir réalité d'ici 1970. Au moins un organisme dentaire, la Louisiana Dental Association se prépare à ce changement en publiant des normes pour l'interprétation du code d'éthique, quant à l'acceptation des cartes de crédit.² La Louisiana Association interdit que les compagnies de carte de crédit publient la liste des dentistes qui acceptent leurs cartes. Elle interdit également l'affichage d'emblèmes à l'extérieur du cabinet dentaire annonçant l'acceptation de ces cartes. De plus, les dentistes de la Louisiane ne doivent pas encourager leurs patients à adopter les cartes de crédit et ils ne doivent pas augmenter leurs honoraires, par suite de leur propre participation à ces systèmes de crédit.

Certaines de ces injonctions font partie implicitement du code de déontologie de l'Association dentaire canadienne. Notre code interdit la sollicitation directe ou indirecte des patients. Il interdit également la publication des noms des dentistes dans les répertoires publicitaires commerciaux, à moins que ceux-ci n'énumèrent dans les mêmes termes et sans discrimination les noms de tous les praticiens autorisés à exercer dans la région desservie par l'annuaire.

Dans quelle mesure nos membres connaissent-ils ces restrictions et à quel point sont-elles compatibles avec la nouvelle technologie? C'est une autre question. Peut-être serait-il judicieux de les réexaminer maintenant, pendant qu'il est encore temps de le faire.

1. Markstein, D. L. How the "checkless society" will affect you. *Dental Economics* 58:27, août 1968.

2. Brown, E. T. BankAmericard and dental ethics. *New Orleans Dental Association News of Dental Activities* vol. 5: No 6: p. 3, 1er septembre 1968.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.

Saskatchewan Dentist to Work in Africa

To the Editor:

Last year I visited Rhodesia, Malawi, Tanzania and Kenya as a member of Operation Crossroads. This organization arranged a five week itinerary which gave me an opportunity to view at first hand the dental problems of these four African countries. The experience has prompted me to return to Malawi where I have been selected by the United Church Board of World Missions to work in a Roman Catholic mission operated by the 'Medical Missionaries of Mary' — an Irish order of nuns. It should be quite interesting as I will be the only male hospital staff member until a hoped-for English male physician arrives next February or later.

Being the only dentist in the northern region of Malawi, I will be giving dental treatment at the neighbouring Anglican and Presbyterian hospitals in the area. It is a true ecumenical project and we intend to make it work!

My proposed length of service is four years, and during that time I hope to be able to train assistants and help to educate dentally the medical assistants that care for dental emergencies in the out-clinics. My main interest is in dental public health and I will be instructing the nursing classes along these lines.

I will be happy to forward short articles and illustrations of my work. Perhaps these will increase the interest for dental volun-

teers in developing countries. There really is a sad lack of them when compared to members of other professions that I met in Africa last year.

D. E. Phillips, DDS,
Nipawin, Sask.

Intravenous Anaesthesia

To the Editor:

I write with reference to the review of *Intravenous Anaesthesia* which appeared in the September issue of the Journal. Your 'reviewer' (for what he has written is not a review of the book mentioned) attacks the work of the Society for the Advancement of Anaesthesia in Dentistry and its postgraduate courses. You should know, therefore, that all members of SAAD courses must have administered 50 general anaesthetics during the previous year and, as stated in the said book, there is no attempt to 'teach anaesthetics' in so short a time. However, in three days of concentrated instruction with the book as advance study material, it is certainly possible to instil some sound precepts of safe basic anaesthetic practice into responsible members and to discourage others from giving anaesthetics.

It is probably not generally known in Canada that over half of the total number of general anaesthetics in Britain are given for dentistry, and that the vast majority of these are given by dentists. Their basic training varies so widely that by far the greatest amount of training is received in practice, with an experienced practitioner. Inhalation techniques are traditional. Our courses were started in the belief (shared by many teachers of anaesthesiology, and still held as firmly after 10 years) that the ability to give an intravenous injection would greatly simplify many inductions and unsuitable inhalation anaesthetics.

Our belief has been borne out by the fact that from 1959 to 1965, in over three million administrations of general anaesthesia with the National Health Service, there was no report of any death or serious after-effect to any patient.

S. L. Drummond-Jackson,
Secretary, SAAD,
53 Wimpole St., London W.1, England.

Student Membership

To the Editor:

I recently read the editorial in the July issue of the CDA Journal regarding membership for dental students in the Association. As I have just commenced the study of dentistry at McGill University I would appreciate any information which you could supply me concerning student membership and a subscription to the Journal.

John Ferguson,
739 Upr. Belmont,
Montreal 6, Que.

Surgical management of non-union of a fractured mandible: report of case

P. T. Smylski,* DDS, FRCD(C) and
G. K. Hurd,† DDS, Toronto, Ont.

A two stage operation for correction of non-union of a fractured mandible with consequent bone deficiency is described. The first stage consists of an open reduction procedure, approximating and immobilizing the fragments. This results in bony union with a mandibular midline shift to the defective side. The second stage consists of an osteotomy of the ascending ramus on the fractured side, extension of the antero-posterior length of the right ramus and consequent restoration of the midline relation of maxilla to mandible.

Cette communication décrit une opération en deux temps pour corriger l'absence de soudure d'un maxillaire inférieur fracturé, avec déficience osseuse subséquente. Le premier temps consiste en une réduction ouverte pour mettre en place et immobiliser les fragments. Il en résulte une soudure de l'os avec déplacement de la ligne médiane de la mâchoire sur le côté défectueux. Le second temps consiste en une ostéotomie de la branche montante du côté fracturé, une extension de la longueur antéro-postérieure de la branche montante droite et la restauration subséquente de la relation médiane entre les maxillaires supérieur et inférieur.

Non-union of bone is the aftermath of delayed healing.¹ It results when calluses of osteogenic tissue, which develop at the fractured ends of the two fragments, fail to meet and fuse or when endosteal formation of bone is inadequate. When this occurs, bone resorption of the fractured ends causes a defect which cannot be bridged by bone.²

When a bone breaks, the Haversian vessels are torn at the fracture sites, as are the vessels of the periosteum and marrow cavity that happen to cross the fracture line. Injury to the vessels causes

considerable extravasation of blood and simultaneously disrupts the local blood supply. Each Haversian canal contains only a single vessel; when this is torn the osteocytes of the Haversian system die. The dead bone extends away from the fractured area to the site of anastomosing circulation.^{3,4} The blood and exudate is invaded by cells and new capillaries. The proliferating cells are osteoblasts, derived for the most part from the deep layer of the periosteum. In the course of four or five days the osteoblasts form trabeculae around central spaces which become new

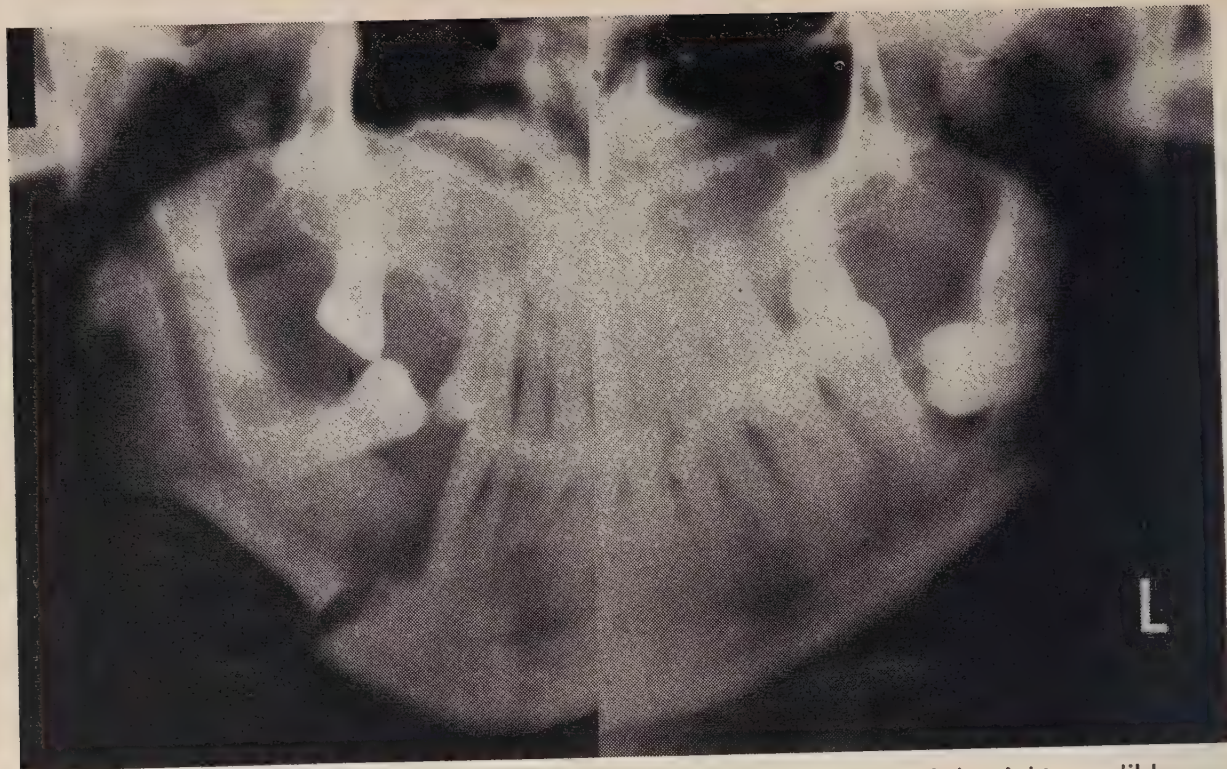


FIGURE 1 Panoramic radiograph illustrates long standing non-union of the right mandible.

Haversian canals. The osteoid tissue thus formed is known as a callus. By the end of the second week it is remarkably abundant. Finally, calcium is deposited and the ends are knit together by rigid,

fully formed bone. If the gap between the fragments is not bridged by osteogenic cells within a certain period of time, fibroblasts will fill the gap with fibrous tissue, the matrix of which has no special



FIGURE 2 Fractured mandible has been reduced and immobilized. Eburnated bone ends have been freshened.

affinity for calcium.⁴ This is so-called non-union or fibrous union.

The commonest causes of non-union are improper reduction and inadequate immobilization.⁵ Infection, resulting from a tooth or root left in the line of fracture, may likewise delay or prevent union. Infection prevents the formation of osteoblasts. Instead of bony union, fibrous union then results. Tooth fragments and bone sequestra are recognizable in radiographs. Muscle and fascia may also interfere with adequate apposition where a closed reduction is performed. The fracture remains ununited although the fragments may be connected by fibrous tissue.⁶

Non-union invariably produces a resultant bone deficiency. The extent of deficiency varies. When it occurs, the usual treatment is by grafting autogenous bone into the defect.^{1,4,5} However, in the case here reported, a two stage operation was planned to avoid the necessity of a bone graft.

CASE REPORT

History and Examination. — The patient, a 57 year old man, first came to the dental clinic of the Toronto General Hospital for removal of his remaining teeth and the construction of dentures. At the initial examination there was marked mobility between the bicuspid and molar of the right mandible. Dental and panoramic radiographs revealed a large radiolucent gap in the horizontal ramus of the right mandible (Figure 1). The patient reported that his mandible had been fractured some 20 years previously. The evidence obtained from the patient suggested that no interdental fixation had been used; the only treatment consisted of a Barton head bandage. The fragments had evidently been mobile since. Upon occluding his teeth, there was marked mobility.

The patient seemed healthy. His remaining teeth exhibited moderate to advanced periodontic disease. Palpation of the right mandible produced marked mobility of the proximal and distal fragments. The overlying mucosa appeared

normal in colour and consistency. There were several edentulous spaces. The standard of dental care was average. In the bicuspid area of the right submandibular region there was a relatively circular, puckered, irregular scar which appeared to be a healed fistulous tract. There was no clinical evidence of inflammation or infection; this was supported by radiographic examination.

On admission the patient had a haemoglobin of 16.5 Gm. per cent, a white blood count of 11,600, an erythrocyte sedimentation rate of 5 mm./hr. and a normal differential blood count. His fasting blood sugar was 84 mg. per cent and his blood urea nitrogen was 14 mg. per cent. The urinalysis was negative for sugar and proteins.

We thought that the patient could be helped by open reduction of the ununited fractured mandible. Satisfactory reduction and osseous union would, however, reduce the antero-posterior length of the right horizontal ramus, producing a midline shift of the mandible to the operated side. It was decided therefore to manage the case by a two stage procedure.

Operative Procedure. — The first stage of the treatment, an open reduction of the ununited mandible under general anaesthesia, was performed on November 24, 1965. The fibrous tissue was removed and the eburnated bone ends were surgically prepared. The proximal and distal fragments were approximated and held in position with two 25 gauge stainless steel interosseous wires. The mandible was stabilized with intermaxillary fixation utilizing Erich arch bars with interdental wiring (Figure 2). The patient was discharged November 30, 1965.

The second stage was performed under general anaesthesia on March 10, 1966. It consisted of an open vertical osteotomy of the right ascending ramus. The midline of the mandible was restored to its proper dental relationship with the maxilla. The mandible was then stabilized by intermaxillary wiring utilizing Erich arch bars attached to both jaws. The proximal fragment was positioned by retruding the condylar head as far back as possible and allowing the lower free end to engage in a prepared recess in the distal fragment

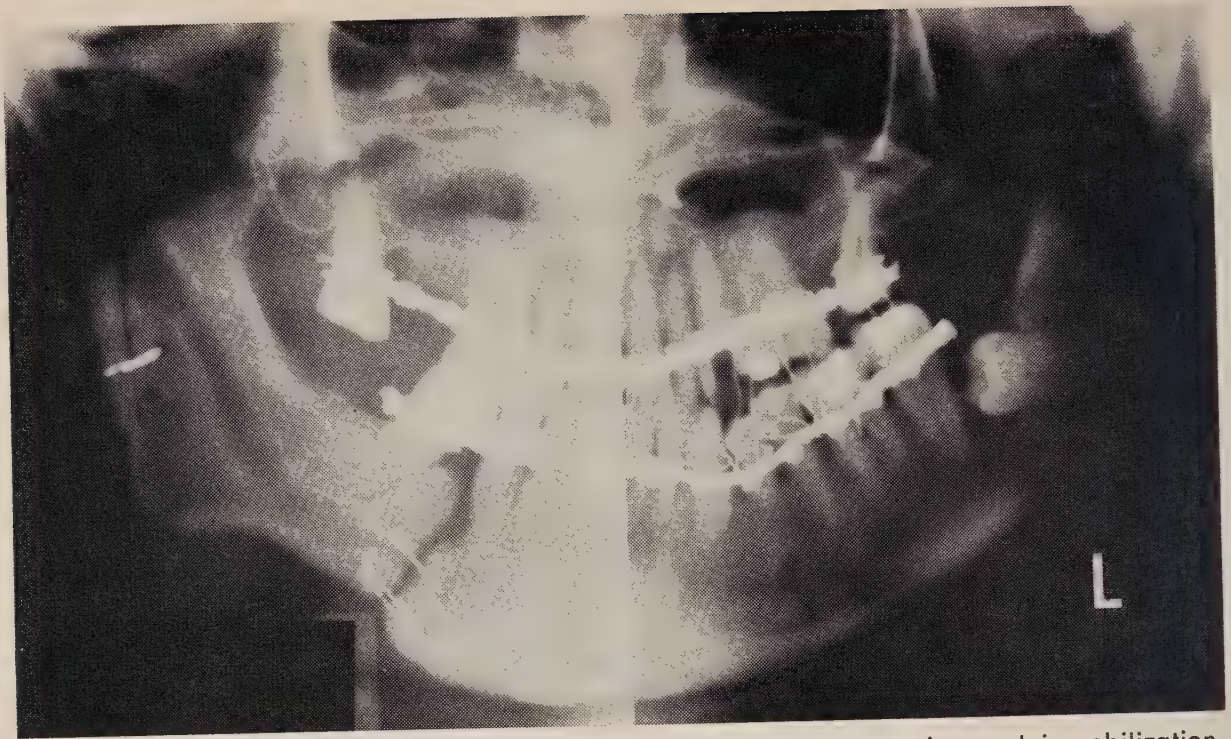


FIGURE 3 Osteotomy of the right ascending ramus followed by extension and immobilization.

so as to form a butt joint. The fragments were maintained in position by a 26 gauge stainless steel wire loop (Figure 3). The patient was discharged March 17, 1966.

Postoperative course. — Subsequent follow-up in the dental clinic showed restoration of a normal midline relation and good bony union (Figure 4). The patient has been well since and has received dentures.

SUMMARY

A two stage operation for the treatment of non-union of a fractured mandible with consequent bone deficiency has been described. The technique alleviates the necessity of operating elsewhere to obtain a bone graft. The first stage consists of an open reduction procedure, placing the fragments in contact, and subsequent immobilization. This results in a mandibular midline shift to the de-

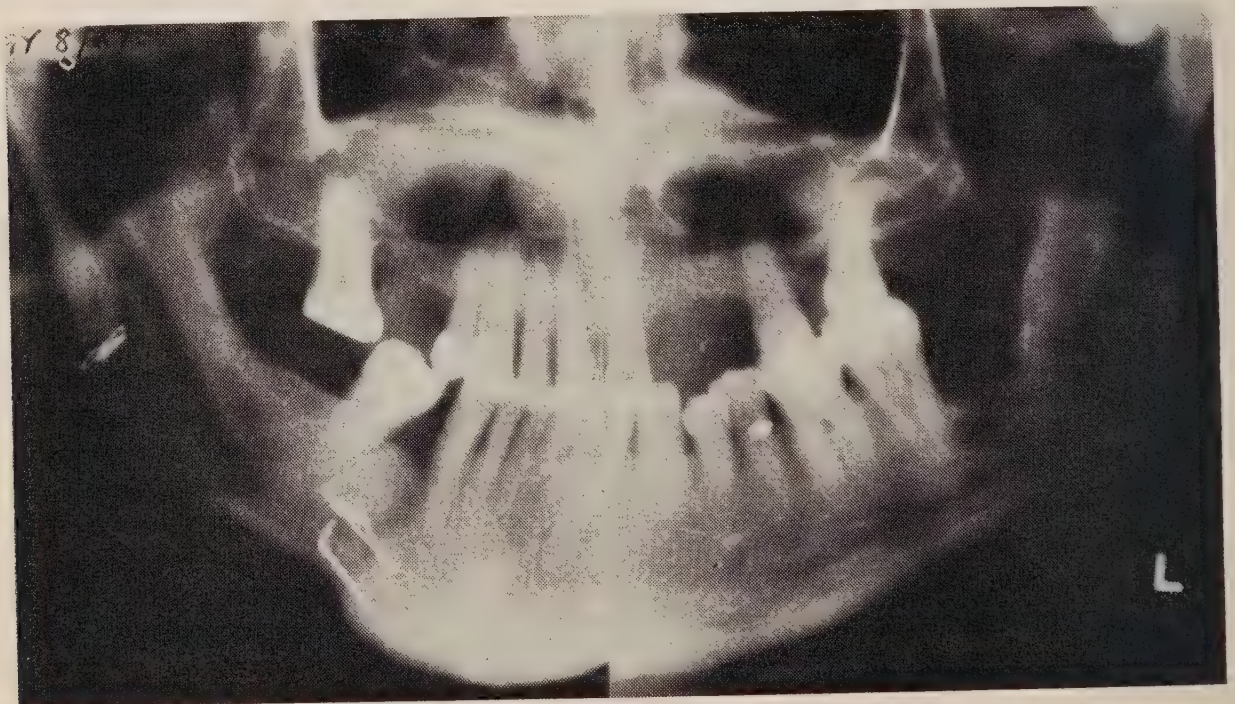


FIGURE 4 Panoramic radiograph showing postoperative results after one year.

fective side. Bony union, however, is accomplished. The second stage consists of an osteotomy of the ascending ramus on the fractured side, extension of the antero-posterior length of the right ramus and consequent restoration of the midline relation of maxilla to mandible.

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†Resident in oral surgery, Toronto General Hospital.

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123 Edward Street

Dental Health Activities of the World Health Organization • During 1958-68, the World Health Organization conducted a series of surveys of the epidemiology of periodontic disease in Ceylon, India, Iran, Nigeria and Sudan, and found it to be highly prevalent in all five countries and closely associated with poor mouth hygiene. Surveys in the Western Pacific Region have provided a basis for the planning and development of dental health services in the Region.

A scientific group on dental health research recommended that WHO should concentrate on epidemiological studies, including the classification of dental and oral diseases and the standardization of methods and techniques. A set of manuals on the methodology of dental epidemiological surveys is being prepared. An international centre for dental epidemiology and applied research has been set up with WHO assistance at the University of São Paulo, Brazil.

Because of the world-wide shortage of dental manpower, WHO has devoted much time to ways and means of remedying the position. Expert committees and an international seminar have stressed the importance of dental health teams and of the rapid development of local facilities for training professional and auxiliary dental personnel. WHO has collaborated with governments in the identification of dental health problems and the evaluation of resources with a view to the development of national dental health programs. Other subjects with which the Organization is concerned are the integration of dental health services in national health services, uniformity of dental services, and the fluoridation of water as a preventive measure. A monograph on fluoridation has been prepared. — WHO Chronicle 22:302, July 1968.

Dental significance of four oral physiological mechanisms

Yojiro Kawamura,*MD, DMS, Osaka, Japan

A knowledge of morphological and functional specialization of the mouth is indispensable for oral diagnosis and treatment. This is illustrated by the following description of the mechanisms involved in masticatory, vascular and tongue problems and referred pain.

Une connaissance de la spécialisation morphologique et fonctionnelle de la bouche est indispensable pour le diagnostic et le traitement en pathologie buccale, comme l'illustre la description suivante des mécanismes de la mastication, des problèmes vasculaires et de la langue ainsi que de la douleur qui en découle.

The mouth participates in chewing, speaking, tasting, swallowing, vomiting and breathing. Morphological and functional specialization permits the mouth to perform these vital activities. A knowledge of specialized oral functions is therefore indispensable for the proper diagnosis and treatment of oral dysfunctions. This article describes such specialization and comments on four mechanisms of particular significance in dental practice.

SPECIALIZATION OF ORAL FUNCTION

Oral motor function is well organized at birth and passes through several stages of postnatal development. The neuromuscular system for oral and mandibular

movements develops earlier than that for the limbs. Newborn babies can make very skilful movements of the mouth like crying and sucking milk but cannot chew. Sucking, a major oral function in the baby, is completely supplanted by chewing after eruption of the teeth. The functional development of the limb system, in contrast, is always in the same direction and characterized by increased skill of movements. Old age brings further morphological and functional changes to the stomatognathic system. In the newborn, taste receptors can be found in the oral mucosa of the palate, cheeks and pharynx as well as the tongue. These receptors atrophy with age. Taste sensitivity is therefore much lower in the adult over 50 years; his sensitivity to sweet taste is only about half that of the young child.¹

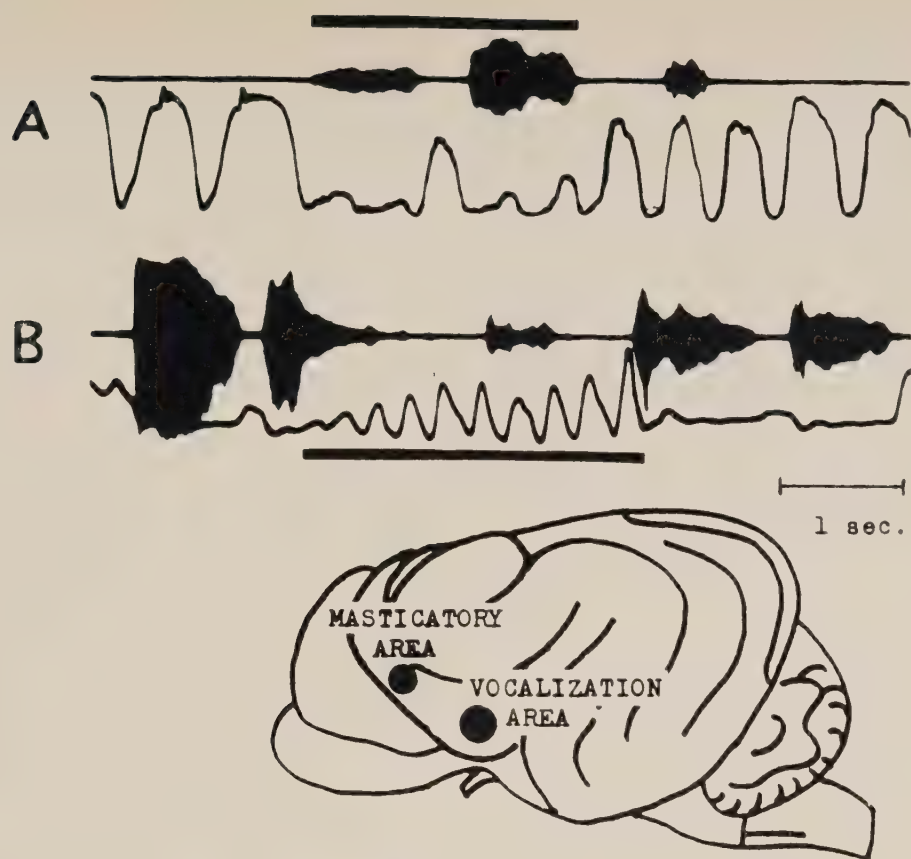


FIGURE 1 Interrelationship between mastication and vocalization. A, effect of cortical stimulation of the vocalization area on cortically induced mastication. B, effect of cortical stimulation of the masticatory area on cortically induced vocalization. Upper tracing: vocalization. Lower tracing: masticatory movements of mandible.

The mouth is the only place in the body where a variable sized cavity contains a complex movable organ, the tongue. Usually, we never bite the tongue during normal mastication, speech and deglutition because the activity of the tongue and jaw muscles is closely coordinated.² The bilateral temporomandibular joints function simultaneously; this functional relationship between the mandibular muscles and joints on either side differs somewhat from relationships between muscles and joints in the limbs. The patterns of lingual mandibular movements vary from one synergy to the next. In the case of mastication and vocalization these two functions are reciprocally related. Vocalization is inhibited during chewing and vice versa (Figure 1).³ This phenomenon is assumed to be due to a central switch mechanism. Dis-

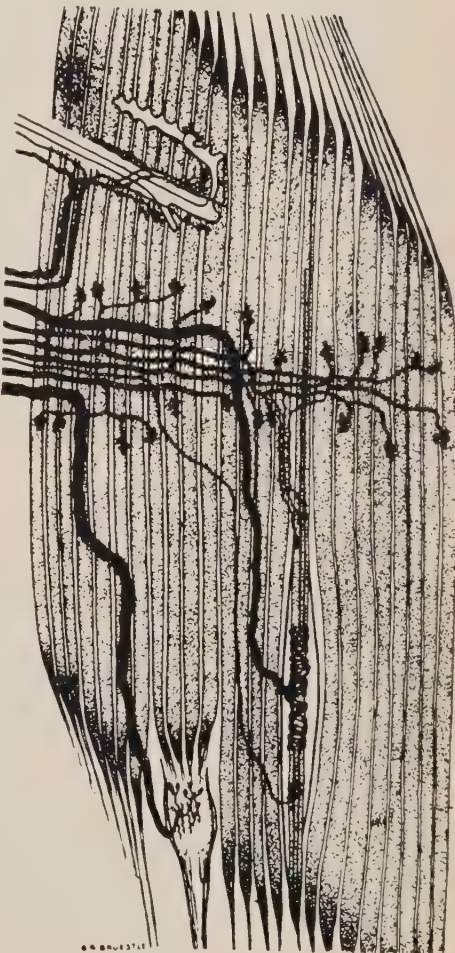


FIGURE 2 Denny-Brown's diagram illustrating the sensory receptors in skeletal muscle. A Golgi tendon organ is illustrated at the bottom left and a muscle spindle at the bottom right.

turbance of these switch mechanisms in the brain may impair normal chewing and vocalization.

Other specializations of function include tactile and gustatory sensation. The front of the mouth is generally more sensitive than the middle. For example, incisors and cuspids are more sensitive to touch and pressure than molars.⁴ The anterior gingiva is more sensitive than the posterior gingiva. Lips are more sensitive than the mucosa elsewhere in the mouth. The superiority of frontal sensation is important in the detection of harmful substances entering the mouth and helps to protect the digestive tract against these substances.

Sour and bitter substances are more readily perceived than sweet and salty substances. Sour and bitter tastes are

characteristic of poisonous or putrid substances whereas sweet and salty flavours are characteristic of nutritive elements. Sour flavours produce copious reflex salivation designed to dissolve and wash out the stimuli. Sweet flavours, on the other hand, induce little secretion.

ORAL PHYSIOLOGY AND DENTAL PRACTICE

Oral and perioral structures serving a variety of functions require a high degree of co-ordination. Imperfect co-ordination may derange the whole system. This is one reason why diagnosis and management of functional impairments of stomatognathic structures are difficult. Furthermore, functional disturbances of mastication and speech usually affect the patient's psychological condition. Oral structures are sensitive and any treatment of these structures may induce reflexes such as jaw opening, salivation, gagging and tongue movement. These protective oral reflexes may complicate dental treatment. Many functional disturbances can, however, be solved by utilizing our knowledge of oral physiology. The following examples illustrate this.

Masticatory Muscle Problems. — During dental treatment a patient must keep his mouth open for extended periods. This stretches the masseter and activates proprioceptors in the muscle and tendons. Muscle spindles and Golgi tendon organs are the most plentiful receptors (Figure 2). Jaw closing muscles, when stretched, send proprioceptive impulses to their own innervating motor neurons in the pons via the mesencephalic trigeminal nucleus (Figure 3). Stretch of the masseter in the open mouth position enhances the my-

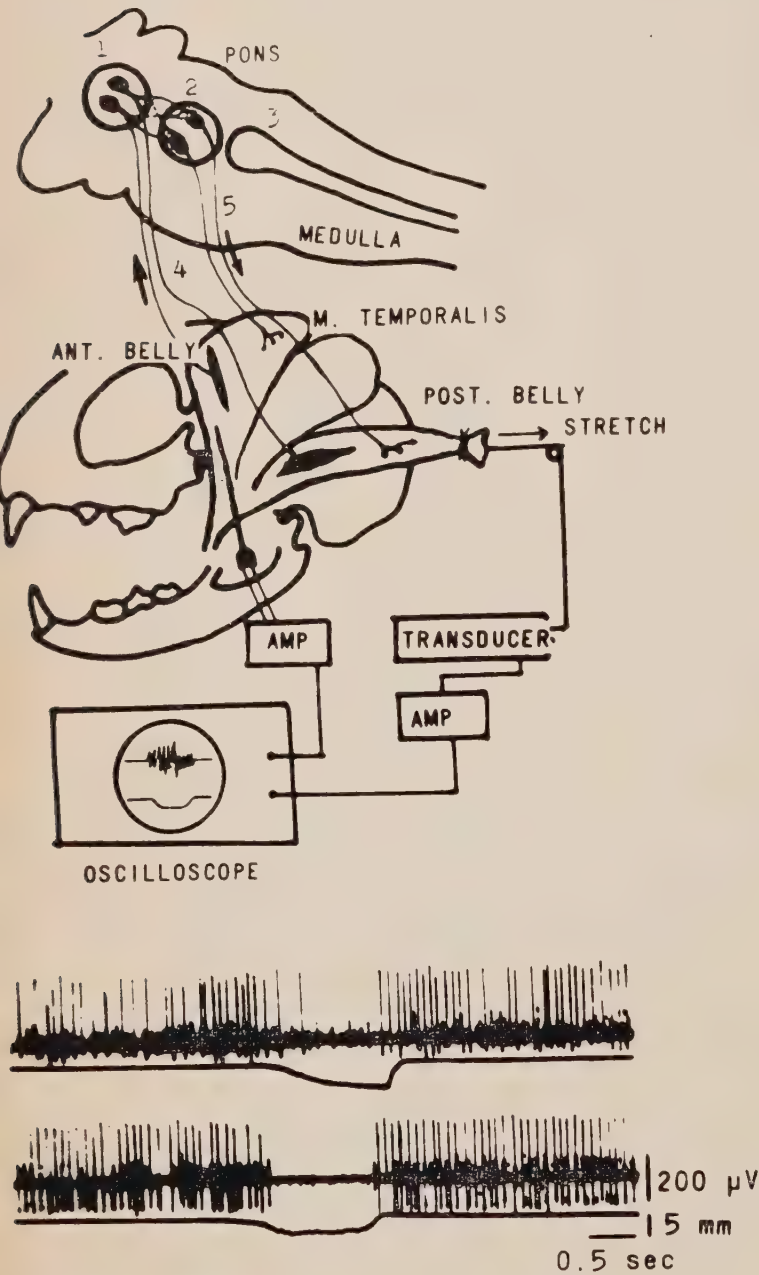


FIGURE 3 Reciprocal relationship between anterior belly and posterior belly of the temporal muscle. Upper schema indicates the reflex arc of this inhibition. (1) Mesencephalic trigeminal nucleus. (2) Trigeminal motor nucleus. (3) Trigeminal sensory nucleus. (4) Afferent sensory nerve. (5) Trigeminal motor nerve. A, electromyograph tracing of the temporal muscle showing inhibition of activity of the anterior belly by stretching of the posterior belly. B, mechanogram tracing showing inhibition of activity of the posterior belly by stretching of the anterior belly.



FIGURE 4 Activation of the masseter muscle by stretching the ipsilateral masseter. Upper tracing: electromyograph of the masseter. Lower tracing: mechanogram.

otatic mandibular reflex which tends to close the mouth⁵ (Figure 4). To keep the mouth open and overcome this myotatic reflex the patient must further depress the mandible by conscious effort. This produces psychological effects. Sustained mouth opening may also compress blood vessels in the jaw closing muscles and induce ischaemic pain. Sudden downward pressure on the mandible will cause sudden closing through the same myotatic reflex. Consequently, an accidentally provoked mandibular stretch reflex may injure oral soft tissues should a dental instrument be in the mouth.

Painful stimuli to the oral and perioral areas innervated by the maxillary and mandibular branches of the trigeminal nerve initiate the jaw opening reflex. Pain impulses from these areas may also lead to mandibular muscle spasm or increased muscle tonus. Jaw closing muscles are inhibited during the jaw opening reflex (Figure 5). Sensory information from the periodontic structures is very important in regulating occlusal position and mandibular movements. Periodontic stimulation always inhibits some of the motor neurons of the jaw closing

muscles⁶ (Figure 6); the teeth and supporting structures are thereby protected against excessive occlusal forces. Once the jaw opens, jaw closing muscles are stretched and the stretch reflex follows in succession; the jaw begins to close and the jaw opening muscles are inhibited. Once the teeth are in occlusion, sensory impulses from the periodontic membrane or oral mucosa inhibit the jaw closing muscles and activate the jaw opening muscles. Chewing movements proceed through alternation of these reflex mechanisms. Any disturbance of this reciprocal function may lead to difficulties in chewing.

Vascular Problems. — It is generally accepted that the pulp mediates only pain sensation whereas touch and pressure sensations are mediated through the periodontic membrane.^{7,8} Sensory discharges can be induced in dogs' alveolar nerves when the arterial pressure of the dental pulp is raised. These discharges can be recorded in single viable fibres of the inferior alveolar nerve supplying the canine pulp when Ringer's solution is infused into a dog's inferior alveolar artery.

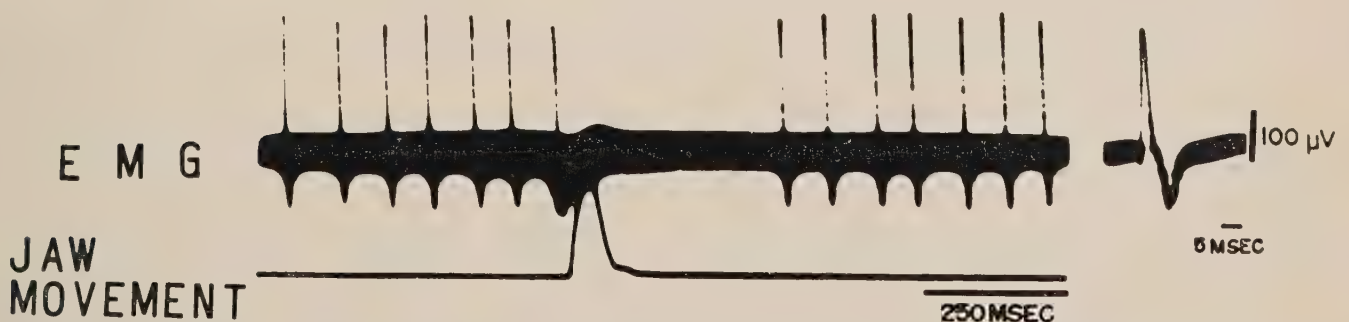


FIGURE 5 Inhibition of electromyograph of jaw closing muscle during jaw opening reflex. Upper tracing: electromyograph of masseter muscle. Lower tracing: mandibular movement with the jaw opening upward.

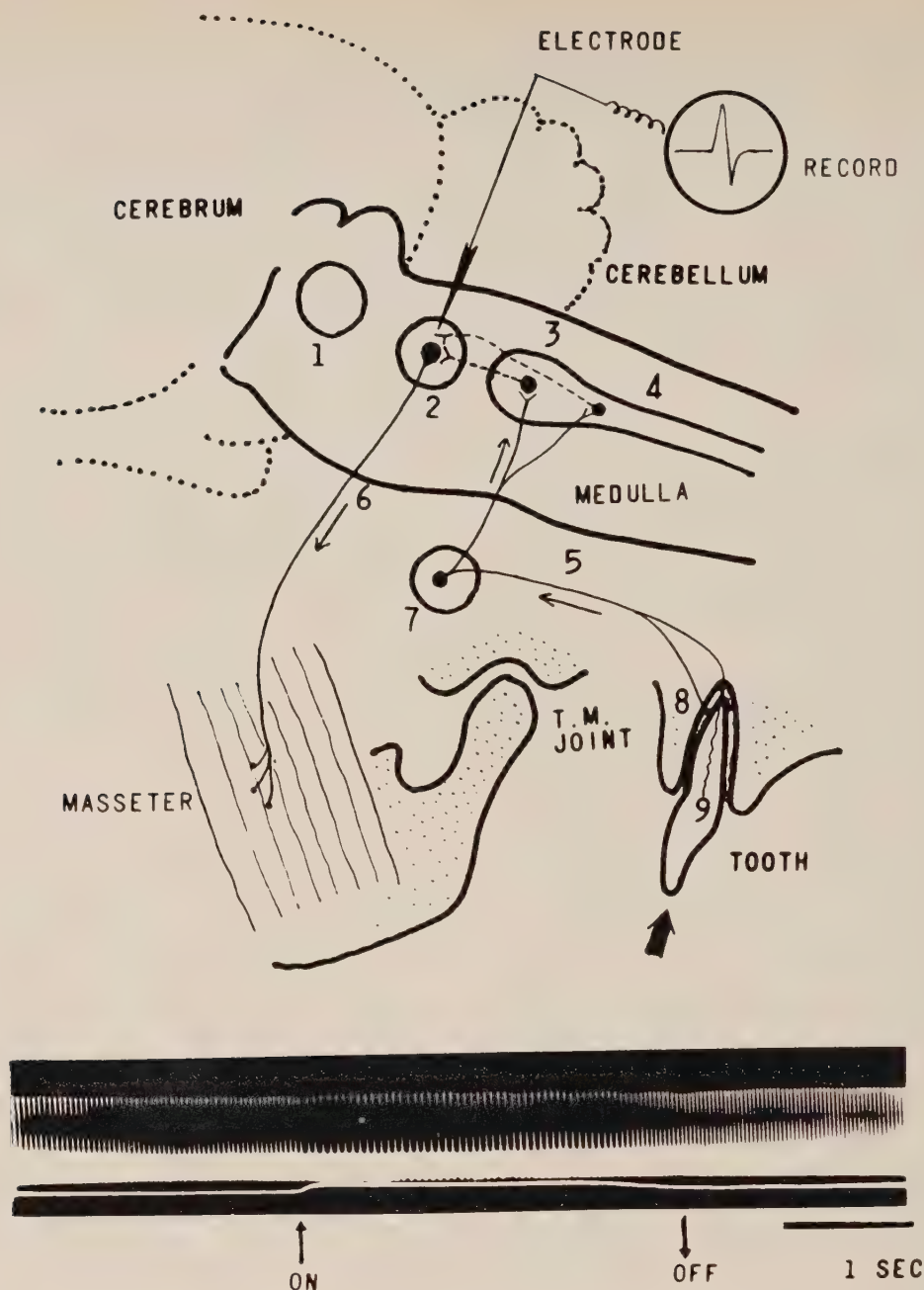
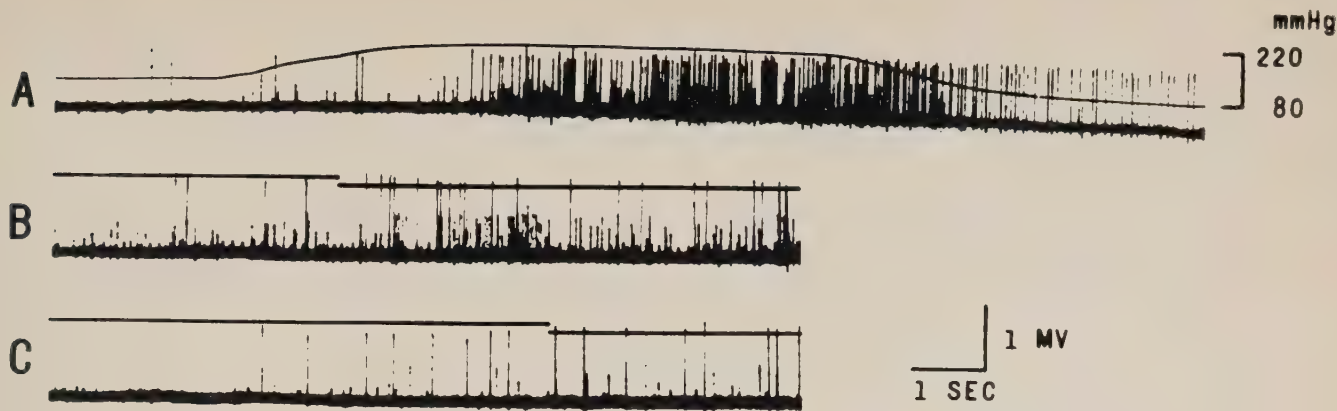


FIGURE 6 Upper diagram illustrates the possible anatomical course of the jaw opening reflex. (2) Trigeminal motor nucleus. (3) and (4) Trigeminal sensory nuclei. (5) Afferent fibre innervating periodontic membrane (8) and dental pulp (9). (6) Trigeminal motor nerve. (7) Trigeminal ganglion. Dashed lines represent inhibitory interneurons. Lower record indicates inhibition of a masseter motor neuron during painful stimulation of the cuspid.

The discharges begin when the increase in arterial pressure exceeds 15 mm. of mercury and continue for some time after the pressure returns to normal (Figure 7). The nerve fibre also responds to hot water (80°C) but not to warm water (20°C) applied to the tooth surface. These experimental results suggest that abnormal pressure elevations in small vessels in the pulp brought about by inflammation or vasomotor reflexes may induce

vascular pain in the area. A chemical pain substance may participate in this phenomenon. This would explain the time lapse before the pain fibre begins to discharge and the sustained discharge after the stimulation has ceased.

Another vascular phenomenon in the oral area is the vasomotor reflex induced by facial pain. Painful stimulation of oral, perioral or facial structures induces a temperature increase in oral soft tissues



A: RESPONSE TO PRESSURE OF INF. ALV. ARTERY
B: RESPONSE TO 80 °C WATER
C: RESPONSE TO 20 °C WATER

FIGURE 7 Response of dental pain fibres to increased pressure in the inferior alveolar artery. The nerve responded to application of 120 mm. Hg intra-arterial pressure with a discharge of about 20 spikes per second after a three second delay. The discharge continued with almost the same frequency for the duration of the elevated pressure. This nerve also responded to hot water at about 80°C but not to water at 20°C applied to the tooth surface.

of about 0.2°C as measured with a needle type thermistor inserted into these tissues.⁹ The temperature rise is ipsilateral with weak stimulation but bilateral and extensive with stronger stimulation. This temperature elevation is closely related to the amount of blood flowing through the tissues. The phenomenon is not observed, however, in inflamed dog's gingiva (Figure 8), presumably because

the vessels are in a maximally dilated condition.¹⁰ Thus, inflamed tissue may not be capable of responding as well to noxious stimuli. Loss of this defensive mechanism in the vascular system may jeopardize the health of the tissue.

Physiological sensory stimulation of dental structures may only elicit transient local somatic and autonomic responses; the effects of the stimulation

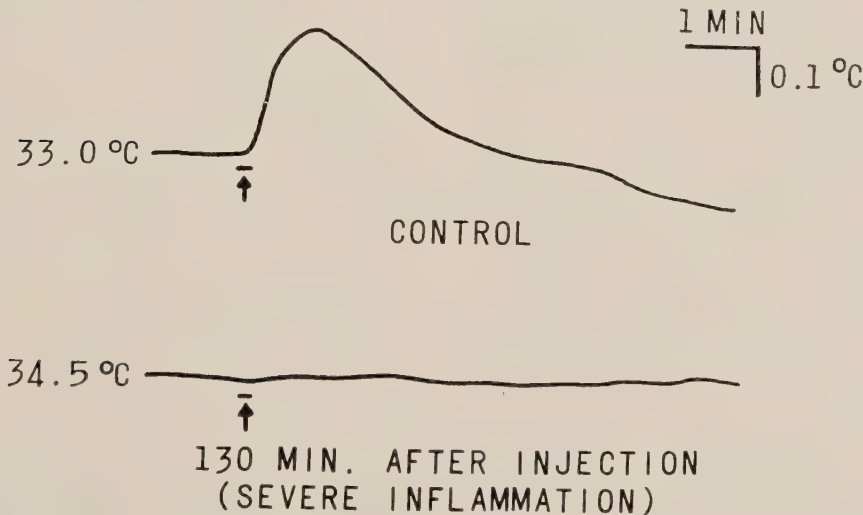


FIGURE 8 Loss of temperature increasing responses in inflamed gingiva. Upper frontal gingiva was electrically stimulated at the point marked by the arrow. Temperature increasing response of lower buccal gingiva disappeared on severe inflammation induced by croton oil injection.

may disappear rather quickly due to adaptation of the receptor organs.¹¹ For example, a 0.4 mm. metal plate inserted between the second and third incisors of a cat induced the integrated alveolar nerve response of 16 mm. shown in Figure 9. The response diminished to 3.5 mm. with-

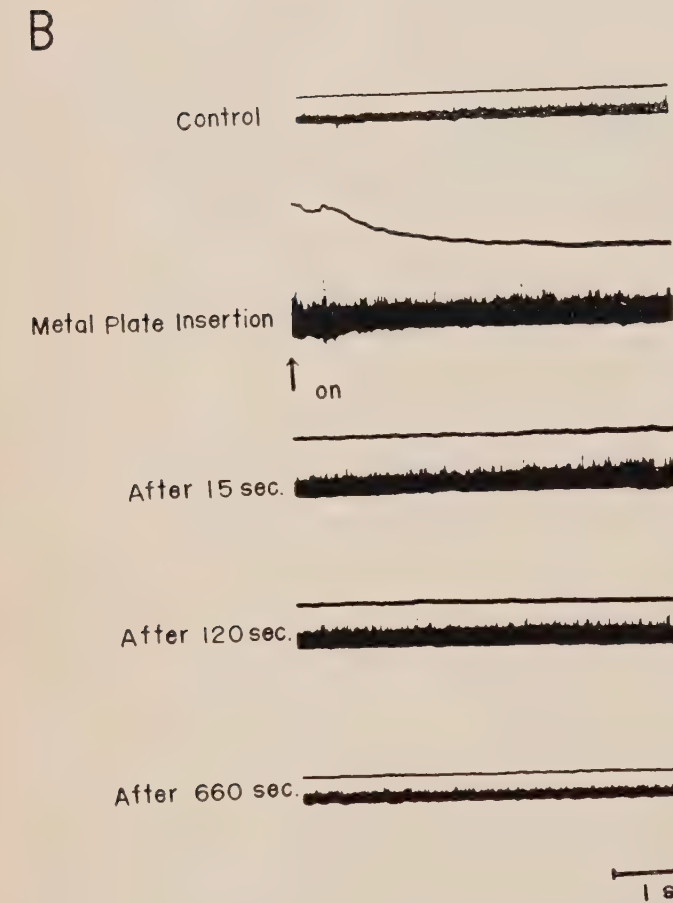
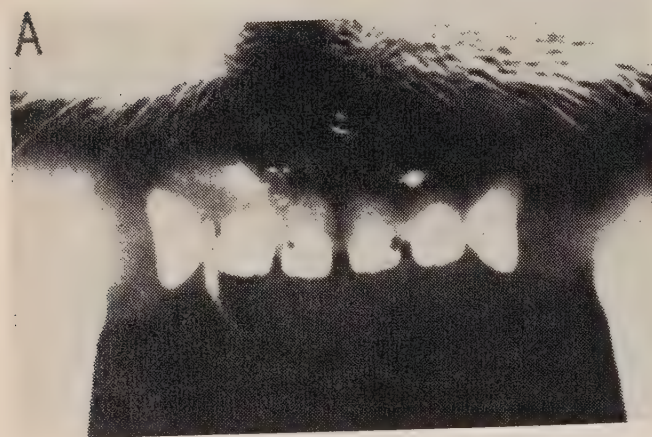


FIGURE 9 A, separation of the second and the third incisors of the cat by insertion of 0.2 mm. thick metal plate. B, discharge and integrated response of the anterior superior alveolar nerve induced by insertion of 0.4 mm. metal plate between the second and the third incisor of the cat.

in 30 seconds and to zero within 11 minutes. A very strong and sustained stimulus may then induce the previously described systemic pathological effects.

Tongue Problems. — The tongue can retract very quickly when it is protruded. Tongue retraction is more limited when initiated from the rest position. The tongue is more likely to be protruded or raised when it is stimulated in the mouth. During treatment the dentist should therefore protect this organ from injury by discs or other instruments when the patient unconsciously attempts to protrude or raise the tongue.

Stimulation of the oropharyngeal area and the base of the tongue readily induces the swallowing reflex. Small objects dropped on these areas may be easily swallowed or aspirated.

Referred Pain. — Superficial pain is usually transmitted by the appropriate branch of the trigeminal nerve and the patient feels pain at the site of noxious stimulation. Prolonged deep facial pain may radiate to other areas, however. Such referred pain complicates the diagnosis and treatment of facial pain. Odontogenic pain may be referred to specific areas of the face.¹² Shapiro has identified these areas and their dental origin as follows:

- Supraorbital region — upper incisors;
- Zygomatico-facial area — upper second molar;
- Infraorbital region — upper first molar or second bicuspid;
- Preauricular region — upper second and third molars;
- Region lateral and below the ala of the nose — upper cuspid or first bicuspid;
- Region lateral and below the corner of the mouth — lower incisors, cuspid or first bicuspid;
- External auditory meatus and parotid region — lower second or third molar; and
- Submandibular region — lower third molar.

Pain originating in muscles may be referred to dental, oral, facial and joint sites.¹³⁻¹⁵ Pain originating in the masseter may radiate to the molars, gingiva, facial skin over the mandibular bone, eyebrow

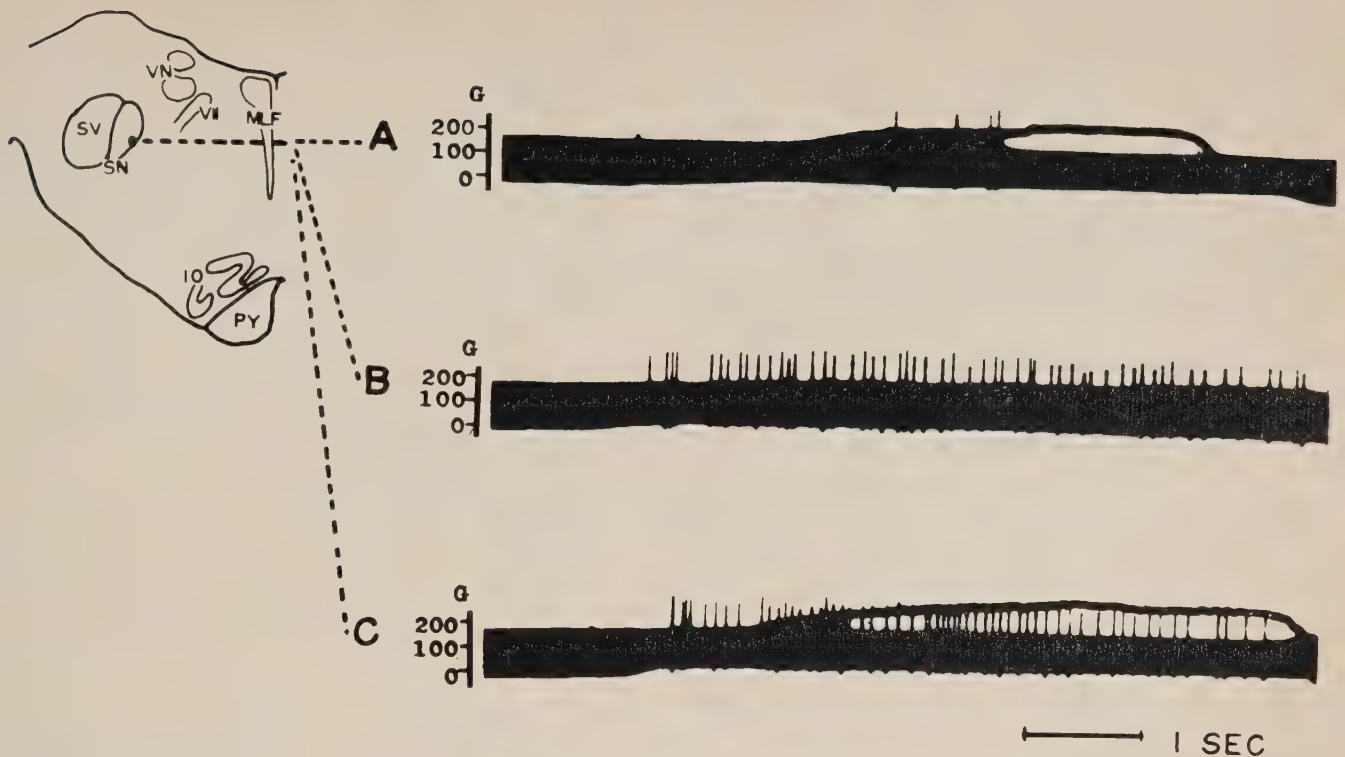


FIGURE 10 Discharge of a spot in the medial part of the trigeminal sensory nucleus in response to light pressure on the ipsilateral upper molar (A), cuspid (B) or incisor (C).

and ear. Pain from the external pterygoid is referred to the temporomandibular joint area.¹⁶ The internal pterygoid may refer pain to the tongue, hard palate and temporomandibular joint. The temporalis muscle may refer pain to the upper teeth, orbital area, temporal region and to the temporomandibular joint area. Maxillary sinus pain may be referred to the teeth.¹⁷ Persistent dental pain may induce mandibular muscle spasms and muscle pain which in turn may be referred to the teeth and temporomandibular joint, thereby establishing a vicious circle.

Neural mechanisms underlying such referred pain have not been fully explained, but convergence of peripheral pain fibres either on the second neuron pool in the medulla or on the third neuron pool in the thalamus is widely accepted as a basis for referred pain.¹⁸ Facial pain is referred to the dermatomes supplied by the afferent trigeminal nerve through which facial afferent impulses reach the medulla. Thus, referred pain in the masticatory muscles seems to come from the superficial facial area (convergence projection theory).

Afferent impulses from different teeth may converge on a single central neuron.

This can be shown by stimulating either upper or lower teeth and subsequently recording the discharges from the affected neuron. Recent experiments¹⁹ in the cat reveal that one neuron in the sensory nucleus of the fifth nerve may respond to stimulation of two different teeth (Figure 10). One spot on the medial part of the nucleus responds to pressure stimulation of the left maxillary canine and incisors. Another spot responds to stimulation of both the upper and lower canine. In these instances afferent impulses from different teeth appear to converge onto the same neuron in the trigeminal nucleus. Most sites in the sensory nucleus, however, respond only to stimulation of a single tooth. Where referred pain can be attributed to convergence of the pain impulses into the central nervous system, such pain can be eliminated by infiltration of anaesthetic into the vicinity of a suspected site.

Subliminal fringe effects may also account for referred pain (convergence-facilitation theory).²⁰⁻²¹ For example, pain impulses from masticatory muscles can lower the threshold of firing of the second order trigeminal neuron receiving impulses from superficial facial areas.

This minor activity of the pain pathway from the superficial facial area may then be enhanced and become capable of transmitting pain impulses to the brain. Sinclair et al²² have also suggested the possibility of antidromic reflex mechanisms as a possible cause of referred pain. Furthermore, stimulation of deeper tissues may provoke hyperalgesia.²³ When the mucous membrane or dental nerves within the maxillary antrum are electrically stimulated for about three minutes, the subject begins to complain of hyperalgesia of the middle part of the facial skin about 10 minutes following stimulation. This effect may continue until the next day. The mechanism of this hyperalgesia is still unclear; the release of a pain-inducing substance is suspected because of the time lapse before the effect becomes manifest.

Referred pain deserves consideration in any diagnosis and treatment of pain in this region.

SUMMARY

This paper summarizes the specializations of oral function and illustrates their application to dental practice. Although there is much to learn and much research to be done, there is a substantial body of scientific knowledge which the dentist can bring to bear on the diagnosis and treatment of his patients' problems.

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32 Joanchō Kitaku

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Maxillary sinusitis of odontogenic origin

Extension of periodontic or periapical infection, sinus perforation during tooth extraction, displacement of foreign bodies, oro-antral fistula and odontogenic cysts account for 10 per cent of all cases of maxillary sinusitis. Prophylactic administration of antibiotics does not improve the healing of a healthy sinus which has been accidentally exposed. The treatment of acute sinusitis, on the other hand, includes the administration of antibiotics, irrigation and nasal sprays. All foreign bodies should be removed from the sinus as quickly as possible. They are withdrawn through a buccal window above the apex of the involved socket. The original perforation should not be enlarged. It is necessary to eliminate infection and restore ventilation prior to closing an oro-antral fistula.

La propagation de l'infection périodontique ou périapicale, la perforation du sinus pendant l'extraction d'une dent, l'enlèvement de corps étrangers, la fistule oro-antrale et les kystes odontogéniques sont responsables de 10 pour cent des cas de sinusite du maxillaire. L'administration prophylactique d'antibiotiques n'aide pas à guérir un sinus sain qui a été atteint accidentellement. (Par contre, le traitement d'une sinusite aiguë demande l'administration d'antibiotiques, l'irrigation du sinus et sa vaporisation.) Il faut enlever du sinus tous les corps étrangers, aussi rapidement que possible, par une fenêtre buccale située au-dessus de l'apex dans l'alvéole concernée, mais il ne faut pas élargir la perforation originale. Il est nécessaire d'éliminer l'infection et de restaurer la ventilation avant de fermer une fistule oro-antrale.

In 1651 Nathaniel Highmore wrote that "the bone which encloses [the maxillary antrum] and which separates it from the sockets of the teeth does not much exceed a piece of wrapping paper in thickness."¹ This intimate relationship gives rise to numerous diagnostic and therapeutic problems. Brophy, in this century, attrib-

uted 75 per cent of all cases of sinusitis to infected teeth. However, more recent estimates place the incidence of odontogenic maxillary sinusitis at 10 per cent of all cases.^{2,3}

The maxillary sinus, the largest of the five paranasal sinuses, is pyramidal in shape. In adults it varies considerably in

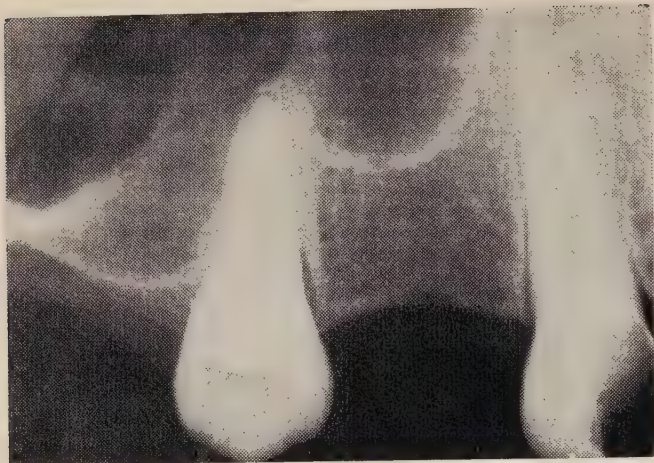


FIGURE 1 The maxillary sinus, separated from the apices of the teeth by a thin lamina of bone, has expanded into the edentulous areas adjacent to the remaining teeth.

size and contour. At birth it is a small cavity approximately 3 mm. in diameter, the rest of the maxillary bone being filled with tooth buds. The cavity enlarges as the teeth erupt so that by age seven it extends as low as the middle nasal turbinate. At age 15 the sinus descends to the level of the nasal floor. In adults it extends below the floor of the nose.⁴ Further expansion of the sinus may continue throughout life. In some individuals the floor extends to the apices of the teeth and interradicular spaces; in others it spreads into adjacent edentulous areas. Tooth apices are usually separated from the sinus by bone of variable thickness. Often, only the sinus mucosa is interposed between the roots and sinus cavity (Figure 1).⁵ Incomplete bony septa frequently subdivide the sinus into several irregularly shaped compartments.⁶ The bony cavity is lined by thin ciliated stratified columnar epithelium and underlying connective tissue containing mucous and serous secreting glands.⁷

The sinus communicates with the middle nasal meatus through the ostium maxillare. Ordinarily, the mucosal secretions are readily evacuated by active ciliary movement even though this opening is above the sinus floor (Figure 2). The location of the ostium hinders drainage, however, when excess fluid accumulates or when the mucosal lining is damaged.

Acute Maxillary Sinusitis. — The acute form of this disease is characterized by

marked subjective findings such as headache, fever, nasal congestion and general malaise.^{8,9} There is persistent severe facial pain on the affected side; this pain is often referred to the supra-orbital region. The pain is intensified when the patient jars his body by jumping or bending.

Examination may disclose a swelling in the mucobuccal fold and the infra-orbital region. Palpation of the canine fossa elicits excruciating pain. The posterior teeth on the affected side may be sensitive to percussion. When swelling and sensitivity of the teeth are present, it may be difficult to differentiate between acute alveolar abscess and sinusitis.

Chronic Maxillary Sinusitis. — The chronic form of this disease may be secondary to the acute form. It may result from a slowly progressing dental or nasal infection or may be of allergic origin. Chronic sinusitis, though often asymptomatic, is

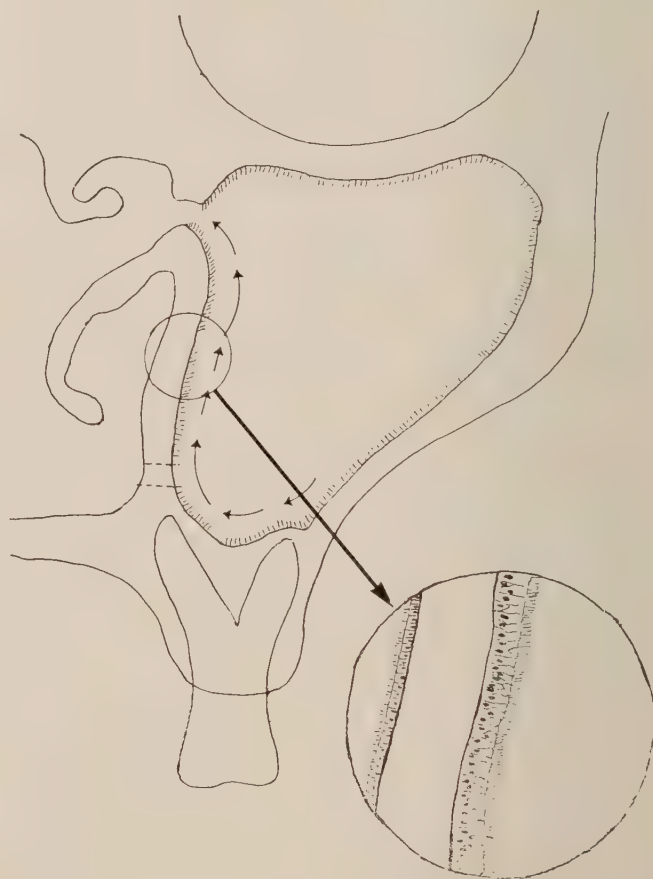


FIGURE 2 Diagrammatic illustration of the maxillary sinus. The ostium maxillare is located higher than the floor of the sinus, but active movement of the epithelial cilia readily evacuates the mucosal secretions through the ostium into the middle nasal meatus. Interrupted lines indicate the site for establishing artificial drainage into the inferior nasal meatus.

usually associated with a thick, foul, purulent nasal discharge and postnasal drip.

Radiographic Findings. — Radiographs are the most reliable diagnostic criteria of acute and chronic sinusitis.¹⁰ Water's projection gives the best comparative view of the paranasal sinuses, but supplemental antero-posterior, lateral and intra-oral films are desirable.¹¹ The normal air-filled maxillary sinus is radiolucent and has sharply delineated margins. Thickening of the mucosa or the presence of fluid or polyps increases the radiopacity of the affected sinus (Figure 10). If both sinuses are affected, they may be compared with the orbital cavities.⁹

Transillumination. — Transillumination has only limited diagnostic value. This is because the light intensity, the darkness of the room and the thickness of facial structures are uncontrolled variables. McGovern reported that radiographic examinations and transillumination findings failed to correlate in 13 per cent of men, 40 per cent of women and 60 per cent of children with maxillary sinusitis.¹²

Dental Infection. — Periapical abscesses or periodontic disease may directly extend into the maxillary sinus.¹³ Most apical abscesses extend buccally, however, and drain into the oral cavity; these lesions rarely perforate the sinus mucosa.¹ In periodontic disease, advanced resorption of the alveolar bone may give rise to direct communication between the periodontic pocket and maxillary sinus.

To correlate dental infection and sinus disease, Fleming^{2,14} and Silcox³ biopsied the mucosa of the sinus floor in patients with adjacent dental pathosis. All specimens, even those from subjects without clinically evident sinusitis, showed pathological changes. Unfortunately these studies lacked control groups. One may therefore question whether biopsies from patients without dental infection would exhibit similar changes in the sinus membrane.

Sinus Perforation During Tooth Extraction. — Undue instrumentation or inadvertent disruption of interradicular por-

tions of the sinus floor may expose the sinus.¹⁵ The risk of perforations rises when periapical or periodontic pathosis has destroyed the adjacent bone. More frequently, anatomical variations contribute to the incidence of perforation, especially when the sinus cavity occupies an entire edentulous area adjacent to remaining teeth (Figures 1 and 3).

If pre-operative radiographs indicate the likelihood of accidental sinus exposure during extraction, the adjacent buccal alveolar bone should be removed or the tooth should be sectioned as a precautionary measure.

Perforations of the bony sinus floor may not disrupt the sinus mucosal membrane. If the membrane remains intact or if the perforation is small (1-3 mm.), a piece of absorbable gelatin sponge is gently inserted in the socket and retained by a silk suture placed across the socket. Manipulation of the tissues should be kept at a minimum. The patient should not smoke, sneeze, or blow his nose for one week. Frequent application of a nasal spray assures the patency of the natural ostium.

In larger perforations and rupture of the membrane, two divergent buccal incisions are made starting at the medial and distal limits of the socket. The mucoperiosteal flap is reflected and the buccal alveolar bone is trimmed without enlarging the perforation (Figure 4). This facilitates sliding the buccal flap toward the palatal gingiva. The margins of the wound are closed with vertical mattress sutures. The mobility of the buccal mucoperiosteal flap can be further increased by a horizontal incision of the periosteum at the base of the flap. Postoperative precautions are the same as for minor perforations.

The depth of the alveolar socket in relation to the size of the sinus perforation is of paramount importance. Sockets may be reduced by periodontic disease or by extension of the maxillary sinus. When a large perforation occurs under these conditions, a proper clot cannot be maintained *in situ* and one must resort to primary closure.

The prophylactic administration of antibiotics following sinus perforation is somewhat controversial. Maloney¹⁶ pre-

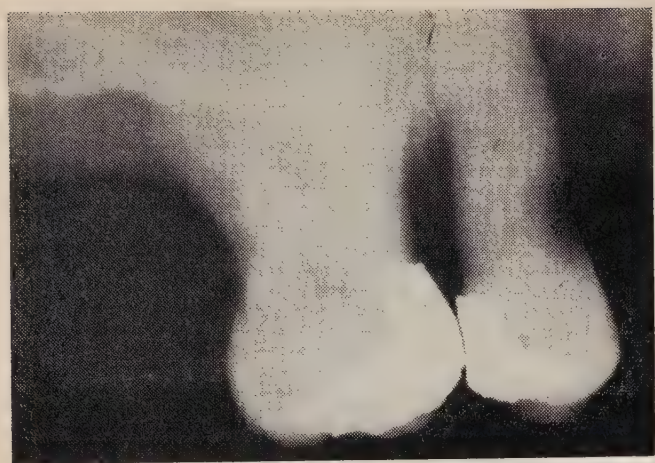


FIGURE 3 Roots of the maxillary first molar extending into the sinus. The likelihood of perforation following a dental extraction in this case is increased by the severe bone loss due to periodontic disease.

scribed a seven day régime of prophylactic oral penicillin for 13 of 26 patients with accidental sinus exposure following tooth extraction. The other patients received oral placebos during the same period. The opening of the maxillary sinus was protected either by a sliding buccal flap or by suturing the orifice of the socket. Water's projection radiographs were taken after 24 hours, one month and six month intervals. All 24 hour radiographs revealed cloudiness of the affected sinus, including those cases where the sinus membrane appeared clinically intact. This radiopacity disappeared within a month. Excellent healing was clinically and radiographically evident at that time. Consequently, prophylactic antibiotics

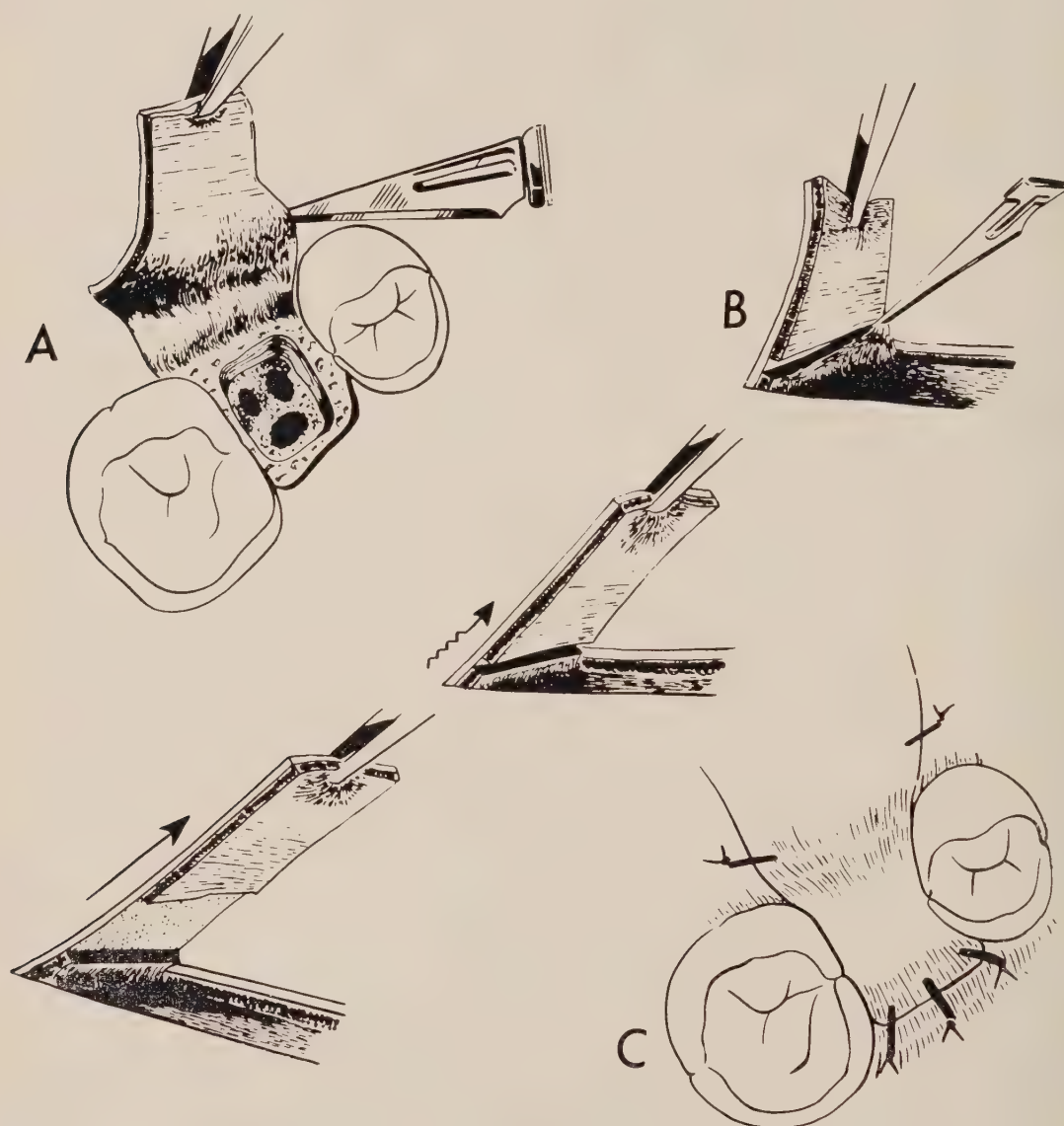


FIGURE 4 Schematic illustration of closure of the maxillary sinus after accidental perforation during tooth extraction. A, two divergent buccal incisions are made at the medial and distal limits of the socket and a mucoperiosteal flap is reflected. B, mobility of the buccal mucoperiosteal flap has been further increased by the horizontal incision of the periosteum at the base of the flap. C, sliding buccal mucoperiosteal flap has been repositioned to obtain primary closure with the palatal gingiva.

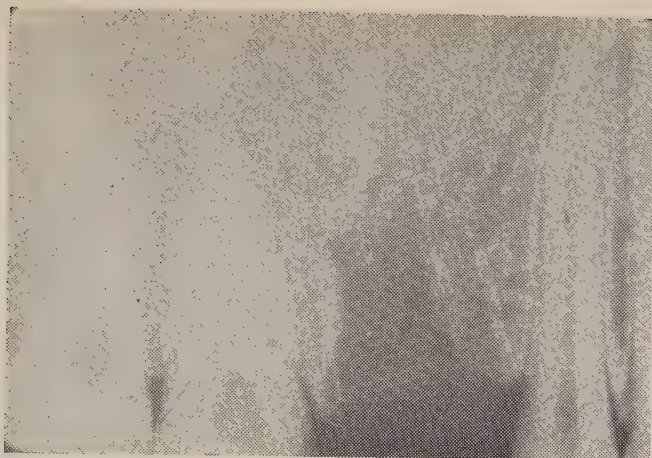


FIGURE 5 Large root apparently displaced into the maxillary sinus. In this case the root was under the sinus mucous membrane and did not actually penetrate the sinus cavity.



FIGURE 6 Buccal root tip of a maxillary third molar accidentally displaced into the maxillary sinus. This case illustrates the rationale for a direct approach to the sinus through a window above the involved socket. Recovery of such a root by a Caldwell-Luc operation would be difficult or impossible if bony septa were present.

may not be necessary for uneventful healing. We do not, however, question the advisability of administering these agents in a case of pre-existing oral or sinus infection.

Foreign Bodies. — A root fragment or other foreign body may be apically displaced and may disappear during surgical manipulation in the posterior maxilla. It is important to ascertain whether the root is actually in the sinus, whether it is lodged beneath the buccal mucoperiosteum or whether it is between the bony floor of the sinus and the intact sinus mucous membrane.

Extra-oral films have limited value for locating roots in the maxillary sinus. Periapical and occlusal films usually show a foreign body that is situated near the actual site of perforation (Figures 5 and 6). However, a small root lodged in a crevice between the bony ridges covering the apices of adjacent teeth may not be visible in radiographs. Therefore, the lack of visible evidence of a root in radiographs does not rule out its presence in the sinus.

All foreign bodies displaced in the sinus should be removed as soon as possible since they serve as a source of infection. Such manipulations as packing the sinus with a gauze strip, having the patient blow his nose or flushing the sinus with saline may simply displace a root tip to an unfavourable position.

The most reliable approach for the re-

moval of a displaced root from the sinus is to make divergent vertical incisions of the buccal gingiva, commencing at the anterior and posterior margins of the socket involved. Reflecting the mucoperiosteum, a window 1 cm. in diameter is opened over the apex of the affected socket through the lateral wall of the sinus (Figure 7).^{1,11} This method is preferable to the Caldwell-Luc approach. It provides direct access at the most likely site of the displaced root tip and thus eliminates possible obstructed vision due to the presence of bony septa. By means of the vertical incisions at the margins of the socket the surgeon may furthermore free the buccal mucoperiosteum and extend it over the tooth socket for primary closure of the wound. We do not subscribe to the enlargement of the original perforation at the apex of the socket. This technique sacrifices a considerable amount of bone from an area where it is greatly needed and enhances the likelihood of an oro-antral fistula.

The Caldwell-Luc approach should be restricted to the cases where treatment has been delayed and the root has been displaced to a less accessible position in the sinus cavity. This procedure is also recommended when prolonged retention of a foreign body results in irreversible changes of the sinus mucosa.

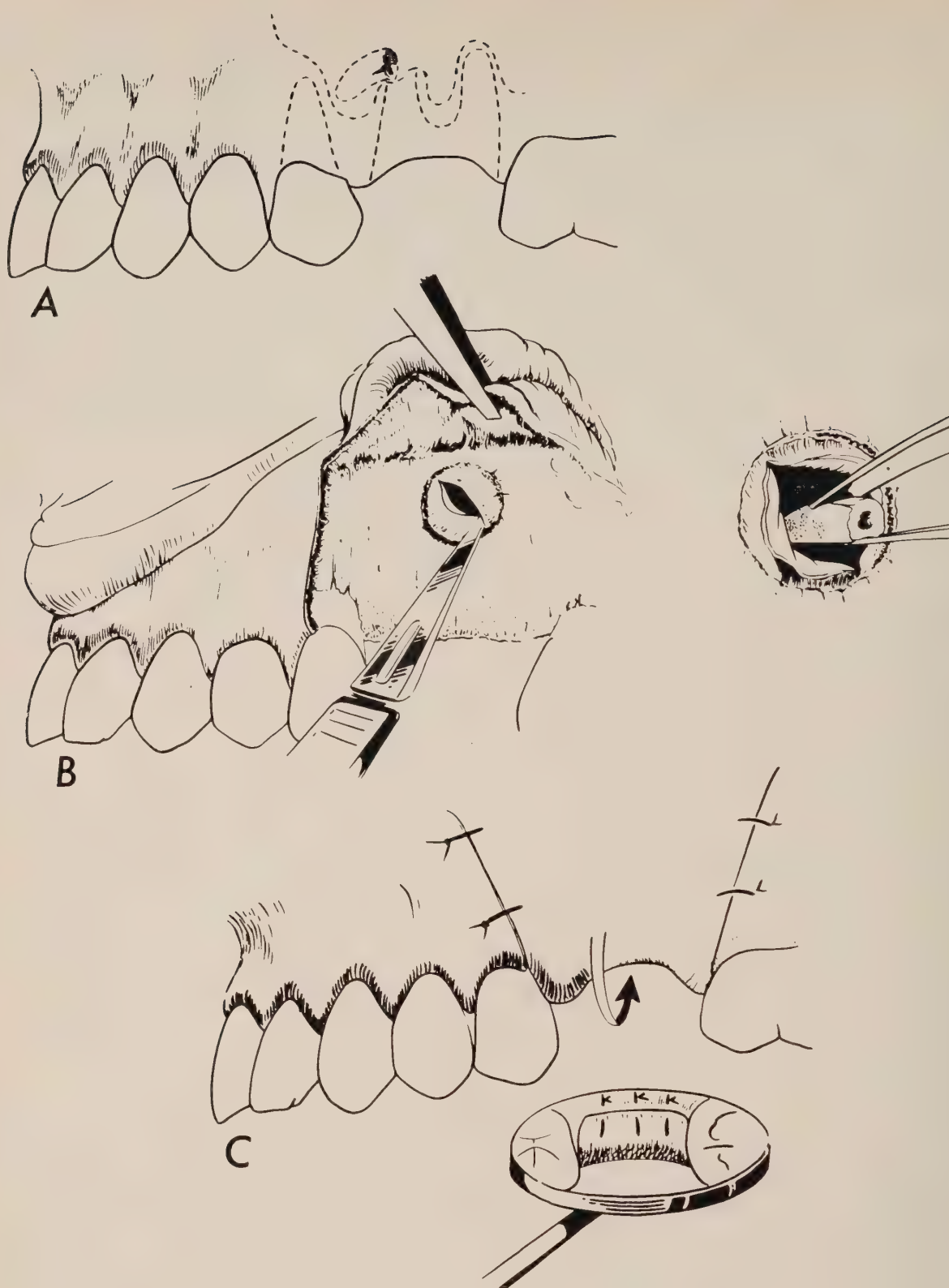


FIGURE 7 Schematic illustration of buccal window approach for the removal of a displaced foreign body from the maxillary sinus. A, root in the maxillary sinus. B, divergent vertical incisions of the buccal gingiva and reflection of a mucoperiosteal flap. A window 1 cm. in diameter is opened above the apices of the tooth socket through the lateral wall of the sinus. C, sliding buccal flap repositioned to obtain primary closure with the palatal gingiva.

Oro-antral Fistula. — Oro-antral fistulae are often asymptomatic, but acute exacerbation of a pre-existing chronic process may produce the classical symptoms of acute sinusitis. At other times the patient's chief complaint may be limited to

discomfort arising from the passage of fluids from the mouth to the nose.

A cardinal requirement of the management of oro-antral fistula is the elimination of sinus infection and the restoration of normal ventilation and drainage of the

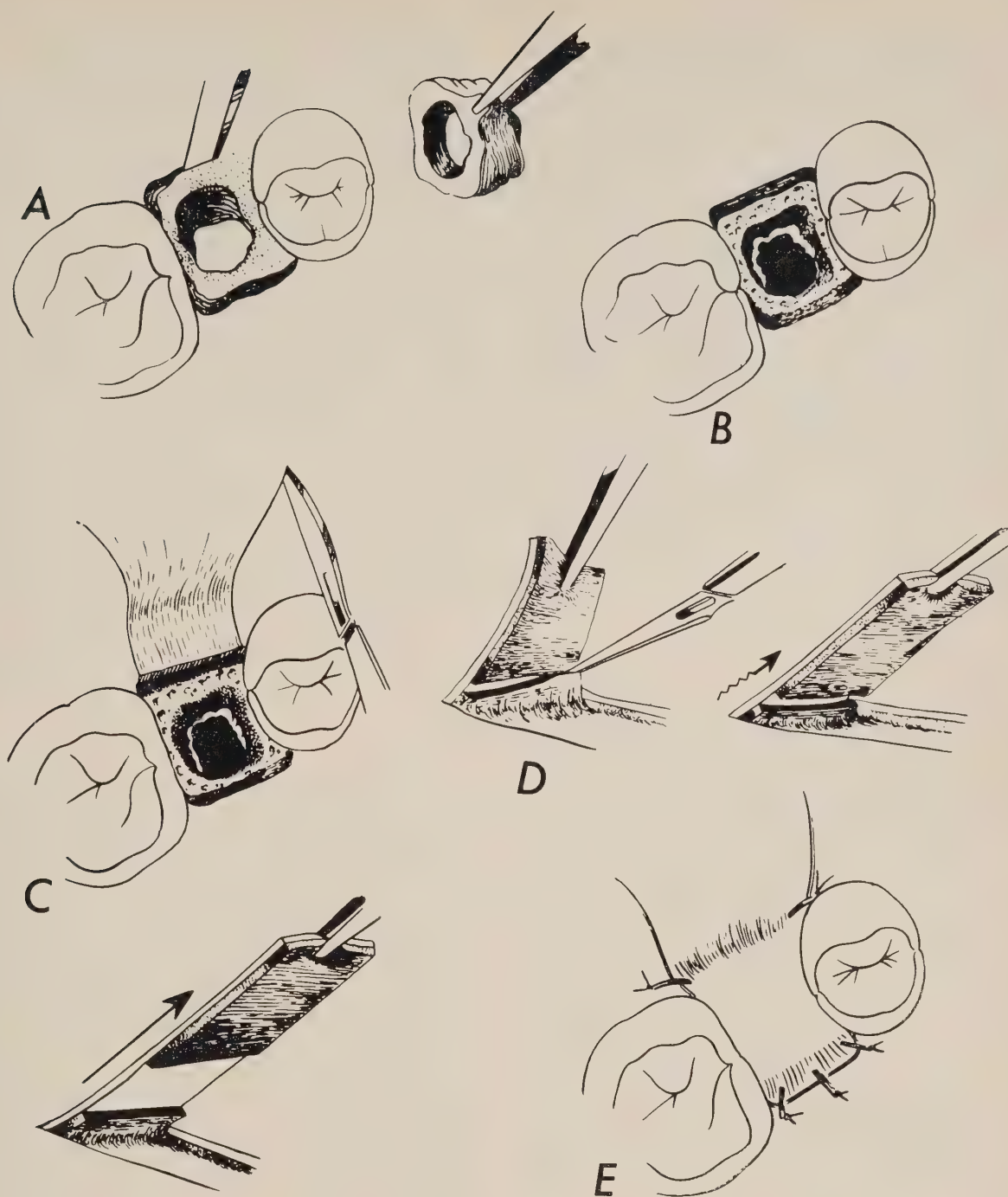


FIGURE 8 Schematic illustration of sliding buccal flap for closure of small oro-antral fistula. A and B, fistulous tract is excised. C, two divergent vertical buccal gingival incisions are made. D, mobility of the mucoperiosteal flap is increased by the horizontal incision of the periosteum at the base of the flap. E, sliding buccal flap is repositioned to obtain primary closure with the palatal gingiva.

sinus through the natural or an artificial opening. Surgical closure of the sinus should not be attempted until these criteria are fulfilled.

Antibiotics are prescribed if an acute sinusitis coincides with an oro-antral fistula. Penicillin is preferred since the causative agents are predominantly penicillin-sensitive and gram positive. A culture of the exudate and antibiotic sensi-

tivity tests are nevertheless desirable because of the possibility of encountering penicillin-resistant micro-organisms. The patient is instructed to apply a nasal spray (1.0 per cent ephedrine or 0.25 per cent phenylephrine) every four hours. Saline irrigation of the sinus through the fistula is advisable when the acute phase has subsided. Using this triad of therapy—antibiotics, irrigation and nasal spray

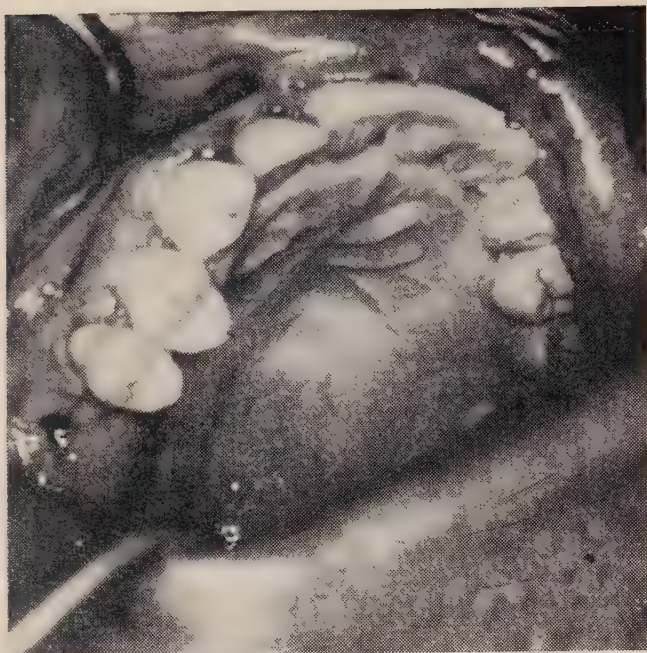


FIGURE 9 Oro-antral fistula of the maxillary right first molar area of six weeks' duration.



FIGURE 10 Water's projection of patient in Figure 9. Note increased density and cloudiness of the right maxillary sinus.

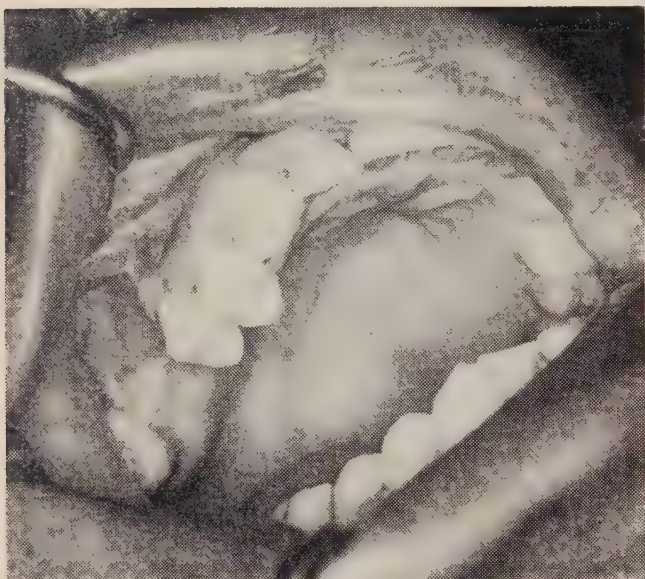


FIGURE 11 Two months after closure of the oro-antral fistula of the patient in Figure 9 by sliding buccal flap as described in Figure 8.

— the infection is usually resolved in approximately five to six days.

The selection of a surgical technique to close the fistula depends on the patency of the natural ostium. The sinus is irrigated through the fistula with saline. The patient inclines the head forward to permit the saline to drain from the nose. The flow will be steady and clear if the sinus is healthy. The fistulous track can then be surgically closed. An intermittent or cloudy flow, on the other hand, indicates



FIGURE 12 Two month postoperative Water's projection of patient in Figure 9.

that the sinus membrane has suffered irreversible degenerative changes with polyp formation. A radical antrostomy must then accompany surgical closure of the fistula.

There are various techniques for clos-

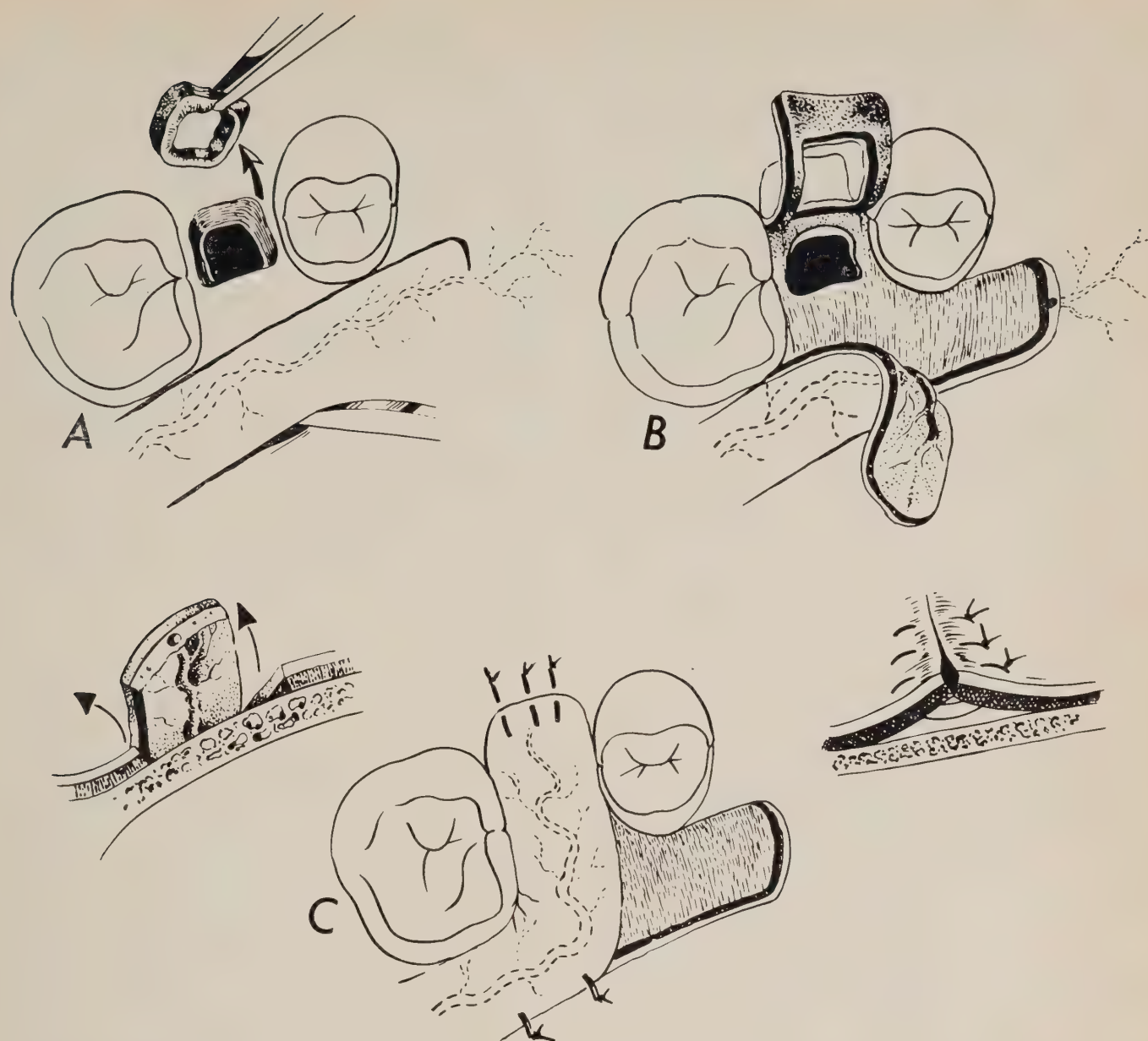


FIGURE 13 Schematic illustration of palatal pedicle flap for closure of large oro-antral fistula. A, fistulous tract is excised and palatal incision is made. B, palatal mucoperiosteal pedicle flap is raised including part of the anterior palatine artery. C, flap is turned over the oro-antral opening and primary closure obtained with the buccal gingiva.

ing an oro-antral fistula. A small opening is readily sealed by means of a sliding buccal flap (Figure 8). The fistulous tract is excised and two divergent vertical buccal gingival incisions are made from the medial and distal limits of the wound. The mucoperiosteal flap is reflected high up into the mucobuccal fold. At its base the periosteum is delicately incised in a horizontal direction. With its mobility substantially increased, the buccal flap is now approximated to the palatal gingiva and closed with 0000 black silk vertical mattress sutures. The wound margins must be entirely free of tension. The vertical mattress sutures not only lessen the

tension but evert the wound edges for maximal tissue approximation. This technique can cause a slight reduction in the depth of the buccal vestibule^{17,18} (Figures 9-12).

The palatal pedicle flap can be used to close a large fistula or one that is situated on the buccal aspect so as to preclude the use of a buccal flap (Figure 13). The fistulous tract is excised and a palatal mucoperiosteal pedicle flap is raised which must include the anterior palatine artery. The flap is then turned to the buccal margin of the wound which has been freed slightly, and the two ends are approximated with 0000 black silk vertical



FIGURE 14 Oro-antral fistula of maxillary left first molar area of four weeks' duration.

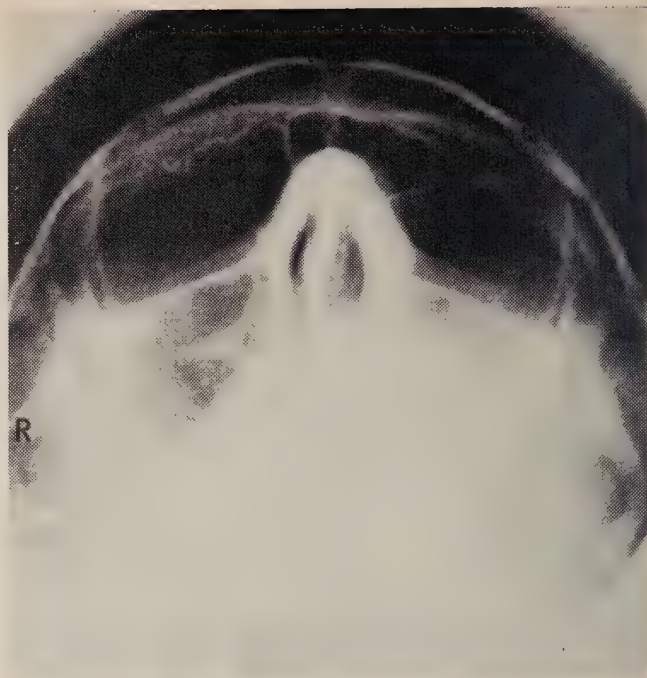


FIGURE 15 Water's projection of the patient in Figure 14. Note increased density and cloudiness of the left maxillary sinus.



FIGURE 16 Palatal pedicle flap closure of oro-antral fistula of the patient in Figure 14.

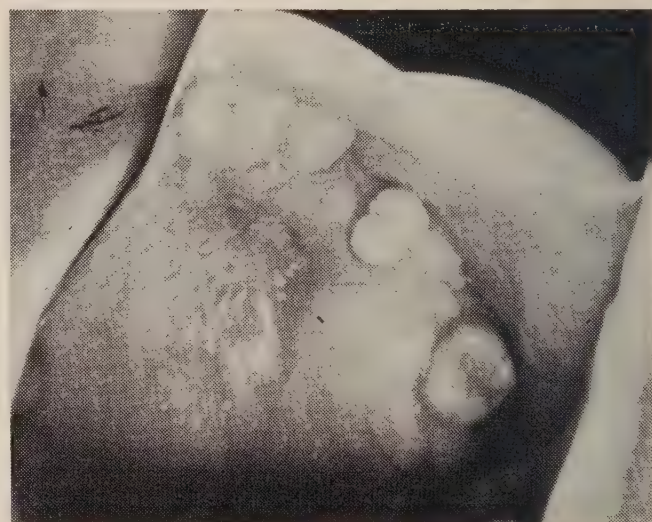


FIGURE 17 Five week postoperative result in the patient in Figure 14.

mattress sutures. When desirable the margin of the palatal flap can be de-epithelialized and tucked beneath the buccal flap. The denuded palatal donor site should be protected by an acrylic splint, surgical cement or tincture of benzoin (Figures 14-17).

Various metals have been advocated for the closure of oro-antral fistulae. Recently, 24 carat 36 gauge gold plate has

been used with encouraging results.¹⁹⁻²¹ The fistula is excised, a buccal mucoperiosteal flap is reflected and the palatal mucoperiosteum is retracted far enough to visualize the bony limits of the perforation. After debridement of the bony orifice and removal of any visible polyps a sterile piece of aluminum or lead foil is adapted and cut to overlap the bony defect by 2 mm. This foil template allows the trimming of a sterile annealed gold plate to the desired shape and size. The



FIGURE 18 Patient with oro-antral fistula of the maxillary left molar region of three months' duration.

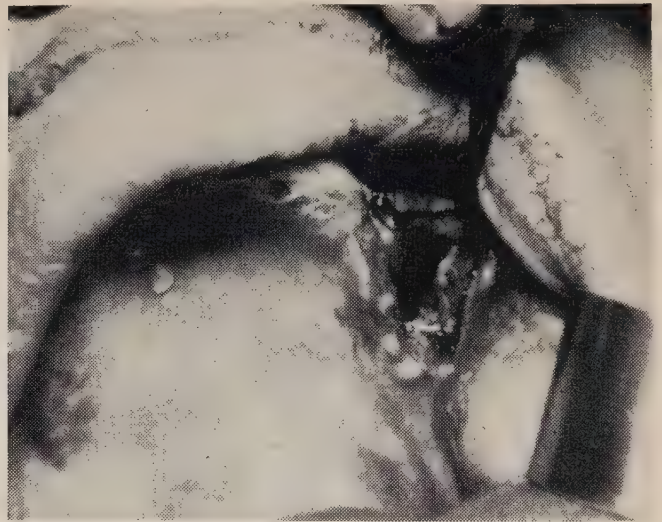


FIGURE 19 Fistulous tract excised. Buccal and palatal mucoperiosteal tissues were reflected illustrating the extent of the bony defect in the patient in Figure 18.



FIGURE 20 Same patient as in Figure 18. 24 carat 36 gauge gold plate is adapted over the bony defect so as to overlap the surrounding healthy bone by at least 2 mm. Margins of the gold plate are burnished.

gold plate is placed over the bony defect and its margins are burnished. The flaps are then repositioned over the gold plate and sutured without attempting a primary closure at the original site of the fistula. The gold plate usually loosens in four to eight weeks and its removal discloses a soft tissue closure on the inner surface of the plate (Figures 18-21). On rare occasions the plate is permanently retained. The advantages of the plate technique are its simplicity, lack of reduction of the buccal vestibule and its



FIGURE 21 Six week postoperative result in the patient in Figure 18. The oro-antral fistula is closed and the gold plate is ready for removal.

adaptability for closure of a large defect. It seems especially helpful in edentulous patients where buccal or palatal flaps would prevent the wearing of a denture during the convalescent period.

When radical antrostomy accompanies closure of the oro-antral fistula, any healthy sinus mucous membrane is retained to expedite regeneration of the new epithelial lining.^{22,23} The sinus cavity is packed with several feet of petroleum jelly impregnated gauze strip, the end of the strip being passed out through a naso-antral window opened into the inferior meatus of the nose. The antral pack-

ing should be removed within 1-3 days to prevent infection. The unpleasant odour of the pack can be controlled by systemic administration of chlorophyll (100 mg. q.i.d.).

Odontogenic Cysts. — Radicular and dentigerous cysts originating from molars and bicuspid involve the maxillary sinus by expansion rather than invasion. There is usually no pain or discomfort. The lesions are commonly discovered through routine radiographic examination or by the development of secondary infection. Cysts may produce a tumefaction on the buccal or palatal aspect of the maxilla and may even initiate an oro-antral fistula.²⁴ Since they contain fluid, cysts are radiographically denser than the surrounding maxillary sinus. An occlusal or periapical film may show a thin bony partition separating the cyst from the sinus. Radiographic contrast media injected into the cystic cavity help to confirm the diagnosis and define the outline of the cyst.

The preferred treatment is total enucleation of the cyst. A radical antrostomy is necessary if the cyst occupies the maxillary sinus in its entirety. Marsupialization is only used in those rare cases where enucleation would sacrifice adjacent teeth or vital structures.²⁵

DISCUSSION

In maxillary sinusitis, allergy should always be considered as "allergy facilitates infections and infection promotes allergy."²⁶ Although about 10 per cent of all maxillary sinus disease is of odontogenic origin, differential diagnosis should include primary infections, cysts of the sinus and primary or metastatic tumours. A sinus infection may coincide with neoplastic disease; in such cases infection can mask the underlying disease.^{27,28}

Reed states that "the underlying cause of acute sinusitis is turgescence and vasodilatation of the nasal mucosa resulting in obstruction of the ostia of various sinuses."²⁹ Thus, the main objective in non-surgical management of all sinus

problems must be adequate drainage and aeration of the affected sinus by the application of a vasoconstrictor. A spray is more effective than drops and should be applied every four hours. An initial spraying of the nostril will reach the anterior aspect of the nose; a minute is allowed for the shrinkage of this portion of the nasal mucosa; a second spraying will then reach the ostium maxillare and facilitate natural aeration of the antrum.

The emergence of resistant organisms throws doubt on the validity of prophylactic administration of antibiotics in accidental sinus exposure. Our controlled clinical studies showed that sinus exposures heal equally well whether or not prophylactic antibiotics were prescribed. Proper surgical closure and adequate ventilation of the sinus are the primary requisites for successful healing.

The parenteral use of antibiotics in the treatment of acute sinusitis is universally accepted. Antibiotics directly deposited in the sinus are of questionable value; they tend to generate bacterial resistance and may precipitate sensitivity to the antibiotic. Streptococci, pneumococci, *Haemophilus influenzae* and staphylococci are the organisms most frequently isolated in sinusitis.^{30,31} Although penicillin and erythromycin are the most effective antibiotics, the incidence of resistant organisms is sufficient to underline the need for culture and sensitivity tests.

SUMMARY

1. The intimate relationship of the maxillary sinus with the posterior teeth predisposes to a considerable incidence of maxillary sinusitis of odontogenic origin.

2. Periapical or periodontic disease may extend directly into the sinus.

3. We believe that the prophylactic administration of antibiotics is unnecessary for healing of a sinus which has suffered accidental perforation.

4. All foreign bodies should be removed from the sinus as soon as possible since they serve as a source of infection. They should be removed through a buccal window above the apex of the in-

volved socket. The original perforation should not be enlarged.

5. It is imperative to eliminate infection and restore normal ventilation and drainage before attempting surgical closure of an oro-antral fistula. The treatment of acute sinusitis should include the administration of antibiotics, irrigation and nasal sprays.

6. The main objective in non-surgical management of all sinus problems is to secure adequate drainage and aeration of the affected sinus by the application of a vasoconstrictor.

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Regular quarterly contributions to the Canadian Dental Association Retirement Savings Plan common stock fund, invested quarterly from March 1958 to August 31, 1968, would have brought you a return of 8.96 per cent. Invest now in your retirement savings plan! Write to the Administrator of CDA sponsored Pension and Insurance Plans, Professional and Industrial Pensions Ltd., 2249 Yonge Street, Toronto 7, Ont.

Parental Participation in the Administration of Fluoride Supplements

A. S. Richardson. *Canad. J. Pub. Health* 58:508, 1967.

Fluoride supplements can be an effective individual preventive measure when regularly administered during developmental years. Five hundred and sixty prescriptions for sodium fluoride drops were therefore distributed to parents of young children resident in six southern British Columbia communities without a resident dentist. Of the 476 parents subsequently contacted (at 4, 8 and 12 month intervals), only 111 or 23 per cent made use of the prescriptions. Twelve per cent claimed they were already giving their children fluoride supplements. Twenty-six per cent of the parents discontinued regular administration of the fluoride supplements within eight months; a further 32 per cent discontinued after 12 months. Inconvenience was cited as the main reason for discontinuing the fluoride supplements. The author concludes that fluoride supplements have little value when utilized on a community basis. They are no substitute for water fluoridation.

Salt Fluoridation: An Alternate Measure to Water Fluoridation

Dario Restrepo. *Int. Dent. J.* 17:4, 1967.

Water fluoridation is not universally applicable in the prevention of caries since in many parts of the world suitable public water supplies do not exist. An investigation is being carried out in Colombia into the feasibility and effectiveness of the addition of fluorides to table salt as an alternative preventive measure.

Simple mixtures of sodium fluoride and salt tend to separate in storage. Mixtures of salt with calcium fluoride or with sodium fluoride together with tricalcium phosphate remain stable, however.

Four communities of similar composition, social development and health status have been surveyed and their DMF teeth rates

recorded. One community serves as a control while the remaining three receive common salt with added calcium fluoride, common salt with added sodium fluoride and fluoridated water respectively. Urinary fluoride levels are measured to ensure similarity of dosage in the three experimental communities. The program is well accepted by the inhabitants in the participating communities and it is hoped to assess the protective effect of each form of fluoride administration with successive annual dental surveys.

Fluoridated Domestic Salt: A Discussion of Dosage

H. R. Mühlemann. *Int. Dent. J.* 17:10, 1967.

Studies in Swiss children with or without a history of elevated fluoride consumption support the view that fluoride administered through domestic salt or milk provides some protection against dental caries. Limited protection by fluoridated domestic salt marketed in Switzerland is most probably due to low dosage (90 mg. F/kg. salt). The fluoride concentration of domestic salt was decided 10 years ago. At that time the almost dogmatic opinion prevailed that harmful biological side effects would occur if any member of a population ingests more than 2.0 mg. fluoride per day. A revision of this attitude is necessary in the light of newer knowledge. It will lead to the recommendation of domestic salts with higher fluoride content. The choice of any dietary alternative to water fluoridation should be based on the knowledge of (1) the maximum permissible intake of fluoride during and after the formation of enamel, and in adults; (2) the variability of ingestion of a proposed dietary fluoride vehicle at different ages, in different geographical areas and by different ethnic groups; and (3) the mechanism by which fluorides of low concentrations provide protection from caries pre- and post-eruptively.

Evaluation of a Stannous Fluoride Dentifrice for Use in Dental Public Health Programs: 3. Supplementary Findings

H. S. Horowitz and Mary B. Thompson. *J. Amer. Dent. Ass.* 74:979, 1967.

Children who brushed with a stannous fluoride-calcium pyrophosphate dentifrice for three years had a 39.4 per cent greater reduction in the average number of proximal surfaces affected by overt or incipient decay compared with children who used a placebo dentifrice. The test product was more effective on teeth that erupted during the

study than on teeth present when the study was initiated. Results of the study did not indicate that increased frequency of toothbrushing reduced the incidence of dental caries. A thorough cleansing of the teeth may, however, be the key to toothbrushing as a caries-preventive measure.

A Two Year Comparison of Three Topical Fluoride Agents

H. M. Averill, Jeanne E. Averill and Angeline G. Ritz. J. Amer. Dent. Ass. 74:996, 1967.

In a two year clinical study to compare the caries-preventive effect of a 2 per cent aqueous sodium fluoride solution, a 4 per cent stannous fluoride solution, and a 2 per cent acidulated phosphate-buffered sodium fluoride solution (pH 4.43) used for topical applications in children 7 to 11 years old, none of the agents was found to be superior to the other two. The group that had received the applications of the 2 per cent aqueous sodium fluoride solution, however, experienced consistently greater reductions in DMF and DF tooth and surface increments. Newly erupted teeth — those erupting during the study — were afforded greater protection, with the group that had received the applications of the aqueous sodium fluoride solution having the greatest reductions (43 per cent).

Fluoride Tablets

I. Gedalia. Int. Dent. J. 17:18, 1967.

Of the alternative methods of adding fluoride to the diet for those using fluoride-free water, that which has received the most serious consideration and study is the daily consumption of a fluoride-containing tablet. There is now general agreement that the daily administration of a tablet containing 1 mg. fluoride during childhood produces a cariostatic effect comparable to that seen in children who have used a community water supply containing 1 ppm fluoride from birth. The use of tablets requires close cooperation between parents, school teachers and physicians, and it is considered that it is reasonable to stop administration of supplemental fluoride after the eruption of the permanent second molars.

Recent studies have indicated a favourable effect in reducing the dental caries rate in the deciduous dentition from the use of

preparations containing fluoride together with vitamins A, B, C and D from birth, though the determination of the correct dosage in young infants presents obvious difficulties.

The metabolic fate of ingested fluorides is becoming better understood. It is still not known, however, whether caries control requires a constant high level of blood fluoride or whether it may be achieved by an intermittent increase in blood fluoride level.

Fluoride administered during pregnancy has been shown to pass through the placenta and to result in an increased fluoride content of the forming deciduous teeth of the foetus. No difference has been observed in the placental transfers of fluoride in women ingesting fluoride from drinking water or from daily sodium fluoride tablets. Available data do not yet provide a complete answer as to the cariostatic effectiveness of prenatal fluorides, but suggest that the greatest benefit is obtained from the ingestion of fluoride by the mother during pregnancy followed by its postnatal use.

The Mechanism of Action of Fluoride in Reducing Caries Incidence

G. N. Jenkins. Int. Dent. J. 17:552, 1968.

Fluoride is unevenly distributed in enamel, the concentration on the outer surface and in early carious spots being much higher than that of the enamel generally. Only the outer surface is markedly influenced by age or the fluoride intake. The low concentrations of fluoride at present in water lead to fluorapatite formation; the high concentrations used in topical application and dentifrices lead, in addition, to calcium fluoride deposition. Evidence on the effect of fluoride in lowering enamel solubility is limited but generally supports it. Fluoride could affect solubility (1) by increasing the proportion of fluorapatite in enamel, (2) by favouring apatite formation rather than more soluble forms of calcium phosphate during 'remineralization' in early caries, (3) by increasing the size of the apatite crystals, (4) by replacing carbonate from enamel. The relative importance of these possibilities is unknown. Plaque contains high concentrations of fluoride but the available evidence suggests that it is not in a form which can inhibit enzymes except within a few days after topical application. Animal experiments suggest that fluoride ingestion reduces the size of teeth but data on human teeth are contradictory. The shape of fissures is also influenced by fluoride both in man and animals, but it is doubtful whether the differences are big enough to influence caries.



Le lexique dentaire de la Fédération dentaire internationale

The FDI Dental Lexicon

The Canadian Dental Association has long considered dental terminology as one of its concerns. For many years the Association maintained a Committee on Nomenclature to clarify principles and recommend systematic naming of "objects and conditions." In 1962 the Board of Governors discontinued the Committee and transferred its functions to the Editor of the Journal. Such an assignment can only be carried out by persons with a broad background in dental literature, history and linguistics. It calls for cooperation, knowledge and good judgement by all who have a regard for our professional vocabulary.

By rare good fortune, in 1960, the Fédération Dentaire Internationale asked its Commission on Dental Research to prepare a lexicon of dental terminology in English, French, German, Spanish and Italian. The Commission's chairman and secretary, Professor P. O. Pedersen of Denmark and Dr. Claes Lundquist of Sweden, began by selecting dental terms for inclusion in the lexicon. An international team of dentists with different language backgrounds then began the arduous work of translation. They translated 7,000 words into their respective languages. The secretarial work was performed at the FDI Central Office in London under the supervision of the Secretary General, Dr. G. H. Leatherman.

L'Association dentaire canadienne considère depuis longtemps la terminologie dentaire comme l'une de ses préoccupations. Pendant de nombreuses années, l'Association a maintenu un comité de nomenclature, chargé d'éclaircir les principes et de recommander des noms pour les "objets et conditions". En 1962, le Conseil des Gouverneurs a aboli ce comité et confié ses fonctions au rédacteur du Journal. Une pareille tâche ne peut être menée à bien que par des personnes ayant une grande connaissance de la littérature dentaire, de l'histoire et de la linguistique. Elle demande la coopération, les connaissances et le jugement de tous ceux qui se préoccupent de notre vocabulaire professionnel.

Par chance, la Fédération dentaire internationale a demandé à sa commission chargée de la recherche dentaire de préparer un lexique de terminologie dentaire en anglais, français, allemand, espagnol et italien. Le président de la commission, le Professeur P. O. Pedersen, du Danemark, et son secrétaire, le Dr Claes Linquist, de Suède, ont commencé par choisir les termes dentaires qui devaient figurer dans le lexique. Une équipe internationale de dentistes de différentes langues entreprit alors la tâche ardue de traduction. Ils traduisirent 7,000 mots dans leurs langues respectives. Le travail de secrétariat fut effectué sous la surveillance du secrétaire général, le Dr G. H. Leatherman, au siège social de la FDI, à Londres.

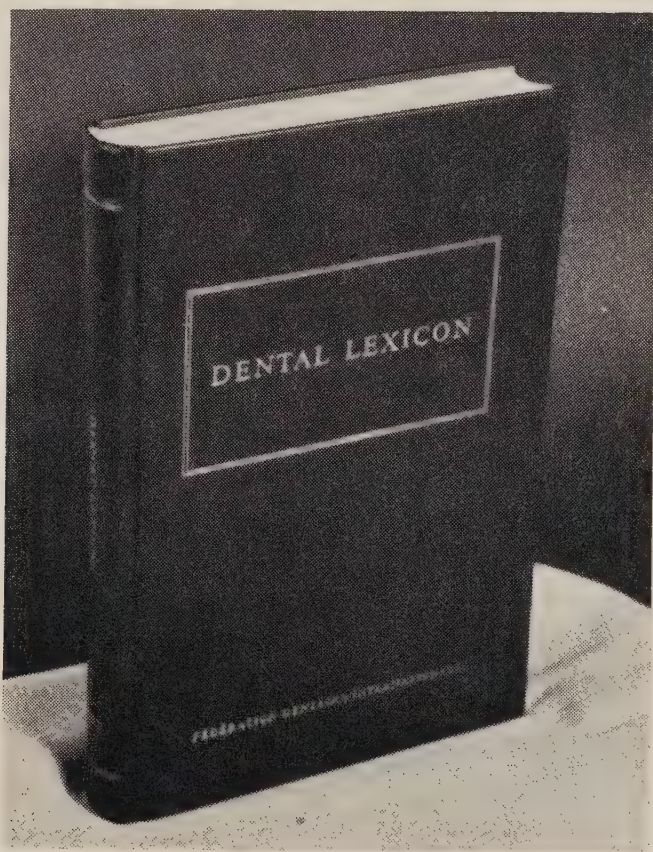
La réalisation de ce projet, qui a demandé un effort gigantesque de la part de tous les participants, a pris six ans.

This brief description of a Herculean effort by all concerned covers about six years in time. The first copies of the FDI *Dental Lexicon* were used by the interpreters at the 1966 FDI annual session in Tel-Aviv, Israel. Since then the lexicon has found its way to dental schools, libraries, government agencies and the dentists' offices in every country and become one of the most widely used dental publications in the world.

The lexicon contains about 7,000 English dental terms with their equivalents

Les premiers exemplaires du lexique servirent aux interprètes à l'assemblée annuelle de la FDI, à Tel-Aviv, Israël. Depuis, il a trouvé sa place dans les facultés dentaires, les librairies, les agences gouvernementales, les cabinets dentaires de tous les pays et il est devenu l'une des publications dentaires les plus utilisées au monde.

Le lexique contient quelque 7,000 termes dentaires anglais, avec leurs équivalents en espagnol, allemand, français et italien. Il a 424 pages. Plus de la



in Spanish, German, French and Italian. It has 424 pages. More than half of these pages are given to the main glossary in which each English term is printed in bold face type and carries a number. Below are printed the equivalents of the English term in the four other languages. At the back of the lexicon are alphabetical indexes in Spanish, German, French and Italian. In these indexes each term has a number referring back to the numbers in the main glossary.

The FDI *Dental Lexicon* was published

moitié de ces pages est consacrée au glossaire principal, dans lequel chaque terme anglais est imprimé en caractères gras et muni d'un numéro. Les équivalents du terme anglais, dans les quatre langues, se trouvent en dessous. Au dos du lexique, les indices alphabétiques sont imprimés en espagnol, allemand, français et italien et chacun des termes est muni d'un numéro pour référence au glossaire principal.

Le lexique dentaire de la FDI a été publié par A. Sijthoff, de La Haye, Hol-

by A. Sijthoff of The Hague, Holland, who also print the Federation's *International Dental Journal*. It is a very handsome and handy volume. Its production was supported by a grant from the United States Public Health Service, National Institute of Dental Research. The lexicon is dedicated to the advancement of international understanding among all workers in the field of health. Its purpose is to improve communication in dental science and practice, and to further the Fédération's efforts to improve dental and total health throughout the world.

The first scientific journal appeared in about 1660. Since then the number of such journals has doubled every 15 years. In 1950 there were about 200,000 and by the year 2000 there could be a million journals if the exponential increase continues. Under these circumstances, any tool that facilitates communication and helps to overcome the additional obstacle of language barriers is of the greatest value to the health professions. By producing the *Dental Lexicon* the FDI has rendered a great service to international understanding and cooperation amongst scientists and practitioners.

P. O. Pedersen

lande, qui imprime également l'*International Dental Journal* de la Fédération. C'est un volume élégant et pratique, qui a pu être produit grâce à un subside du United States Public Health Service, National Institute of Dental Research. Le lexique est dédié à une plus grande compréhension mutuelle sur le plan international, parmi tous ceux qui travaillent dans le domaine de la santé. Son but est d'améliorer les communications dans la science et la pratique dentaires et d'appuyer les efforts de la Fédération pour améliorer la santé générale et dentaire dans le monde entier.

Le premier journal scientifique a été publié vers 1660. Depuis, le nombre de ces journaux double tous les 15 ans. En 1950, ils étaient au nombre de 200,000 et ils pourraient atteindre le million d'ici l'année 2000, si le taux d'accroissement actuel continue. Dans ces circonstances, tout ce qui facilite les communications et aide à surmonter l'obstacle supplémentaire que représente la barrière linguistique est d'une très grande valeur pour les professions du domaine de la santé. En produisant le lexique dentaire, la FDI a rendu un grand service à la cause de la compréhension et de la coopération internationales entre les scientifiques et les praticiens.

P. O. Pedersen

"... Any young man or woman choosing dentistry as a career can be sure of a bright future with ample material rewards and an interesting professional life. Even more important, he will be able to enjoy the deep satisfactions which come to all those who are engaged in giving a beneficial service to their fellowmen." — B. S. Hollinshead.

L'Association

Demande à Ottawa de reconsidérer les prestations de Medicare et d'aider, dans une plus grande mesure, l'enseignement dentaire

L'Association dentaire canadienne a demandé à Ottawa d'allouer des crédits plus importants pour l'enseignement dentaire et d'interpréter plus largement un amendement à la loi canadienne sur l'assurance-maladie (Medicare). Ces deux questions ont été discutées récemment lors de la rencontre du président de l'ADC, le Dr Henri Brouillet et du secrétaire, le Dr W. G. McIntosh avec l'hon. John Munro, ministre fédéral de la santé et du bien-être. Étaient présents également à la réunion, les Drs J. N. Crawford, sous-ministre de la santé et R. A. Connor, chef de la division de la santé dentaire, DNH&W.

Dans une lettre remise au ministre, l'Association demandait à Ottawa d'octroyer des subsides aux dentistes pour leur assurer une formation professionnelle qui les préparerait à la recherche ou à l'enseignement. Elle insistait sur le besoin qu'auraient les facultés dentaires canadiennes de 200 professeurs de plus, à temps complet, d'ici 1977. Elle exprimait sa reconnaissance au Conseil national de recherche du Canada et au Fonds canadien de l'enseignement dentaire pour leur contribution financière, mais faisait remarquer que la totalité de ces ressources n'étaient pas suffisantes pour satisfaire aux besoins actuels et prévus. Les dirigeants de l'ADC ont demandé également

que le gouvernement fédéral fournisse des fonds pour permettre aux facultés dentaires d'inaugurer ou d'étendre des programmes post-gradués et qu'Ottawa augmente le montant des subsides aux universités, afin d'aider les facultés dentaires à augmenter le nombre des professeurs à temps complet.

Dans une seconde lettre, remise également au ministre, l'ADC demandait aussi qu'Ottawa reconsidère une interprétation récente de la loi "Medicare" qui donne au cabinet le droit d'autoriser des contributions fédérales pour tous les services d'assurance provinciaux et rendus à l'hôpital par un praticien dentaire. Le Conseil des gouverneurs de l'ADC considère comme discriminatoires, les mots "à l'hôpital par un praticien dentaire". Lorsque ces services sont rendus par un dentiste, il lui est possible de les rendre beaucoup plus économiquement dans son cabinet qu'à l'hôpital", explique l'ADC, dans sa lettre.

Les deux lettres furent rédigées à la suite de résolutions adoptées à la réunion annuelle de 1968 du Conseil des gouverneurs. Les trois résolutions suivent:

"Il est résolu que l'ADC demande aux agences fédérales concernées d'augmenter de façon substantielle, les subventions accordées aux étudiants dentaires gradués qui se préparent à l'enseignement dentaire."

"Il est résolu que le conseil exécutif fasse connaître au gouvernement du Canada, le besoin urgent de professeurs en dentisterie et que l'on demande aux organisations membres de l'ADC de faire des démarches similaires auprès des gouvernements provinciaux, afin d'obtenir des fonds publics pour la formation de

professeurs en dentisterie.”

“Il est résolu que l’on demande au Gouvernement du Canada de s’assurer que dans le cadre de tout régime d’assurance-maladie pour le peuple canadien et lorsque des paiements sont autorisés pour tout service qui peut être rendu de façon aussi compétente par un dentiste que par le médecin, on autorise que le paiement soit fait aux dentistes sur la même base que pour les médecins.”

Canada

Le Dr Coupland à une cérémonie de l’Association médicale canadienne

Un ancien président de l’ADC, le Dr J. P. Coupland d’Ottawa, représentait l’Association dentaire canadienne à une cérémonie officielle qui eut lieu le 20 septembre, dans la capitale nationale, pour poser la première pierre du nouveau quartier général de l’Association médicale canadienne. Le gouverneur général, M. Roland Michener, présidait la cérémonie. Le centre de l’AMC sera construit au sud-est d’Ottawa, sur l’Alta Vista Drive, près du centre médical de la défense nationale.

Facultés dentaires canadiennes

Le Dr Ratté va diriger la faculté dentaire de l’Université Laval

L’Université Laval, de Québec, vient d’annoncer la nomination du Dr Gustave Ratté au poste de directeur de sa nouvelle faculté dentaire. Cette décision a été prise le 11 septembre.

La création de la faculté faisait l’objet de la recommandation principale du rapport qui a été préparé l’année dernière, pour l’Association des recteurs et des directeurs d’université du Québec. L’Université Laval a annoncé, le 21 mars 1968, qu’elle accepterait ses premiers étudiants en dentisterie en 1971.

Le Dr Ratté qui est établi à Québec,

a eu une carrière distinguée dans le domaine de la dentisterie organisée et de l’enseignement dentaire. Né à St-Augustin de Portneuf, Qué., il reçut son baccalauréat à l’Université Laval en 1925 et son DDS à l’Université de Montréal en 1929. Le Dr Ratté est un ancien membre de la commission des examens dentaires du Québec, ancien président de la Société de stomatologie de Québec, ancien président et gouverneur de l’Association dentaire canadienne; il est membre du comité de planification du centre de la santé de l’Université Laval et gouverneur du Collège des chirurgiens-dentistes de la province de Québec.



Le Dr Gustave Ratté

La contribution du Dr Ratté au développement culturel et social de la dentisterie est bien connue. En 1965, l’Université Laval lui décerna la médaille papale “Bene merenti”. En 1967, il reçut la médaille d’argent de la ville de Paris pour “mérites d’ordre professionnel”. Cette année, le Dr Ratté a reçu également la médaille canadienne du centenaire de la Confédération pour “services rendus à la patrie”.

Organismes dentaires

L’Académie d’endodontie encourage les demandes d’admission

L’Académie canadienne d’endodontie a invité à nouveau tous les dentistes canadiens à y adhérer, en tant que membres actifs ou associés. L’Académie qui est une section de l’Association dentaire cana-

dienne, a été organisée en 1964. Tous ceux qui désirent en devenir membres voudront bien entrer en contact avec le secrétaire de l'Association, le Dr L. J. Rosen, suite 20, 3465 chemin de la Côte des Neiges, Montréal 25, Qué.

Économie

Les employés dans l'alimentation et la pharmacie vont avoir une assurance dentaire

Les employés dans le commerce de détail, alimentation et pharmacie, vont peut-être avoir sous peu un régime d'assurance dentaire, qui sera unique au Canada.

D'après le *New Westminster Columbian*, le nouveau régime de soins dentaires prépayés couvrirait éventuellement plus de 10,000 membres et leurs dépendants, et la gamme des prestations serait plus étendue que celle de tous les autres régimes dentaires en vigueur actuellement au Canada.

De nouveaux règlements pour les spécialistes en Alberta

Les règlements de l'Alberta Dental Association ont été révisés et on leur a ajouté une nouvelle clause gouvernant les spécialistes et les spécialités. Ce règlement demande, entre autres, que le spécialiste obtienne un permis annuel et qu'il limite sa pratique à sa spécialité. Les permis d'exercer des spécialistes doivent être renouvelés tous les cinq ans. Pour avoir le droit de renouveler son permis, le spécialiste doit prouver qu'il a participé à un minimum de 200 heures de cours, de travaux cliniques ou de travaux de laboratoire d'une nature que le comité des spécialistes et des spécialités de l'Alberta Dental Association considère satisfaisante.

A Toronto, les bénéficiaires du bien-être vont recevoir des soins dentaires

Toronto vient d'approuver, le 10 septembre, un programme dentaire pour les 30,000 bénéficiaires du bien-être social,

après que le comité exécutif de Toronto métropolitain eut autorisé un budget de dépenses de \$134,784, pour les quatre premiers mois d'opération. Le comité a approuvé également un accord avec l'Ontario Dental Association qui gérera ce programme approuvé en principe, en février dernier.

Les représentants officiels de Toronto métropolitain estiment que 12,000 des 30,000 bénéficiaires du bien-être social ont besoin de soins dentaires correctifs, sous une forme ou une autre. La province d'Ontario paiera la moitié du coût du programme, estimé à \$432,000 par an.

Le Collège du Québec établit de nouvelles conditions pour les internats et les résidences

A l'avenir, le Collège des chirurgiens-dentistes de la province de Québec devra approuver le choix des internes fait par les directeurs des services dentaires des hôpitaux du Québec. Les candidats devront lui soumettre leur dossier et passer un examen établi par le Collège, avant d'être admis à l'internat.

Le Collège a adopté également de nouvelles définitions pour les internes et les résidents. Un interne est défini comme étant "un étudiant en chirurgie dentaire ou un diplômé en chirurgie dentaire non licencié, inscrit au Collège et admis à fournir ses services dans un établissement". Un résident est "un chirurgien-dentiste inscrit au Collège et nommé à la suite de son internat à un poste reconnu par le Collège aux fins de formation post-universitaire ou en vue de l'obtention d'un certificat de spécialiste".

La Nouvelle-Ecosse adoptera "Medicare" sans prime, en avril prochain

Le ministre de la santé de la Nouvelle-Ecosse, le Dr R. A. Donahoe, a annoncé que sa province inaugurera un régime public d'assurance-maladie, le 1er avril 1969. Ce régime ne demandera le paiement d'aucune prime aux personnes qui résident dans la province depuis trois mois. Il diffère en ce sens, des pro-

grammes similaires adoptés par la Colombie britannique et la Saskatchewan.

Le programme de la Nouvelle-Ecosse, qui coûtera environ \$40 millions la première année, sera financé, à part égale, par le gouvernement fédéral et le gouvernement provincial. La province paiera sa part avec les revenus généraux des impôts, ce qui entraînera évidemment leur augmentation.

Ce régime sera vraisemblablement administré par la Maritime Medical Care Inc., qui est une société médicale appartenant aux médecins. Après le 1er avril 1969, tous les résidents de la Nouvelle-Ecosse inscrits au régime de l'assurance-maladie auront droit aux prestations qui comprennent: les services des médecins dans leur cabinet, à l'hôpital et au domicile des assurés. M. Donahoe a déclaré qu'une étude des services dentaires rendus dans les hôpitaux était en cours et qu'il était possible que certains de ces services soient couverts par l'assurance.

Trois syndicats américains ont l'intention de négocier l'assurance dentaire

D'après la National Association of Dental Service Plans, trois, au moins, des grands syndicats industriels des Etats-Unis donneront à l'assurance dentaire une place prioritaire dans les prochaines négociations, en vue de la signature de conventions collectives. On s'attend à ce que les United Automobile Workers, qui se sont contentés d'une assurance médicaments lors de leurs dernières négociations, donnent la priorité à l'assurance dentaire, en 1970.

La NADSP pense que 1970 sera une année cruciale pour les soins dentaires prépayés. Le Dr K. J. Ryan, président de la NADSP a demandé instamment aux associations dentaires des Etats de fournir maintenant l'appui financier nécessaire pour que les Etats puissent avoir des corporations de services dentaires d'ici 1970. "Si, à cette date, nous n'avons pas dans presque tous nos Etats, des corporations de services dentaires actives, ou tout au moins des agences administratives, la profession dentaire verra diminuer très sensiblement son influence sur la politique et

la mise au point des programmes," a-t-il déclaré.

La NADSP espère adopter dans un très proche avenir, un emblème d'identification et un nom que pourront utiliser tous les régimes de services dentaires qui en sont membres. L'emblème et le nom seront probablement la contrepartie de la "Blue Cross" et du "Blue Shield" employés pour les régimes de prépaiement patronnés respectivement par les hôpitaux et les organismes médicaux.

La suppression des barrières financières ne réussit pas à assurer l'égalité dentaire

Une enquête sociologique sur la santé dentaire entreprise dans deux villes anglaises, très différentes l'une de l'autre, indique que les travailleurs non-manuels perdent généralement moins de dents et portent moins de dentiers complets que les travailleurs manuels. Donc, en dépit du National Health Service de Grande-Bretagne qui a supprimé la plupart des barrières financières, les différences de classe continuent à jouer un rôle en ce qui concerne l'état des dents de la population. L'une des deux villes, Salisbury, avait un nombre moins élevé d'habitants par dentiste que la moyenne nationale, alors que c'était le contraire pour l'autre ville, Darlington.

Fluoration

C'est en Colombie britannique que les dents sont les plus mauvaises, déclare un dentiste de Vancouver

Un dentiste de santé publique de Vancouver a déclaré que la Colombie britannique avait les plus mauvaises dents du Canada, le moins d'eau fluorée et les lois antifuoruration les plus strictes.

Le Dr S. J. Gallagher, directeur de la section dentaire du Service de la santé de Vancouver a révélé que 6.2 pour cent seulement de l'eau potable de la Colombie britannique était fluorée contre un tiers dans le reste du Canada et aux Etats-Unis.

En ce qui concerne les villes, seul St-Jean de Terre-Neuve a une plus mauvaise

santé dentaire que Vancouver, a dit le Dr Gallagher.

Les lois antifuoruration de la Colombie britannique sont les plus rigides en Amérique du Nord. C'est la seule région où un plébiscite sur la fluoration a besoin d'une majorité des trois cinquième pour être adopté.

Vancouver doit voter le 11 décembre et d'autres municipalités adjacentes le 14 sur la question de la fluoration de l'eau locale.

Hygiène publique



Lors du congrès de l'Association dentaire canadienne tenu à Vancouver, le Dr J. J. Marineau dentiste-hygiéniste régional pour la région Montréal-Hochelaga, a été élu président de l'Association canadienne des dentistes en hygiène publique. Il succède au Dr R. A. Connor d'Ottawa.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du régime d'épargne-retraite de l'Association dentaire

canadienne étaient les suivantes au 30 septembre: fonds d'obligations gouvernementales \$13.738; fonds d'obligations corporatives \$14.952; fonds d'actions ordinaires \$25.967. L'avoir total (valeur marchande) du régime se montait à \$9,108,208.96.

Au cours du mois précédent, les transactions, achats et ventes, d'actions ordinaires ont été les suivantes: achat 12,000 actions de United Westburne; vente 1,800 actions du chemin de fer du Pacifique canadien et 3,000 actions de Skil Corporation.

Pour de plus amples renseignements, veuillez écrire à: The Administrator of CDA sponsored Pension and Insurance Plans, Professional and Industrial Pensions Ltd., 2249 Yonge St., Toronto 7, Ont.

Recherche

Les chirurgiens buccaux tiennent une conférence sur l'articulation temporo-maxillaire

Au cours d'une conférence commanditée par l'American Society of Oral Surgeons qui s'est tenue à Chicago, les 1er et 2 juillet, on a discuté du rôle que jouent l'arthrite et les facteurs émotifs dans les dysfonctions de l'articulation temporo-maxillaire.

Des maladies arthritiques dégénératives, telles que l'ostéo-arthrite sont souvent sans douleur et leurs victimes n'en ont pas conscience, a déclaré le Dr J. G. Mayne (clinique Mayo). Des maladies inflammatoires telles que l'arthrite rhumatoïde produisent des symptômes que l'on n'associe pas toujours avec les maladies de l'articulation temporo-maxillaire. Les patients considèrent souvent les symptômes comme étant ceux d'une maladie de l'oreille ou encore comme étant des névralgies du trijumeau ou du glosso-pharyngien. Chez environ 50 pour cent des patients arthritiques adultes, l'articulation temporo-maxillaire est atteinte, a-t-il déclaré, et un grand nombre de ces cas ne sont pas identifiés comme tels.

Deux membres du centre de recherche sur l'articulation temporo-maxillaire de

l'Université de l'Illinois, ont décrit les facteurs émotifs qui jouent un rôle dans les maladies de l'ATM. Le Dr Daniel Laskin a fait remarquer que la tension est l'un des facteurs déterminants chez la plupart de ces patients. La tension est causée par des spasmes musculaires qui proviennent: (1) d'une surextension musculaire (2) d'une surcontraction ou (3) de fatigue musculaire. Ces spasmes musculaires produisent alors un changement de position de la mâchoire qui, à son tour, peut provoquer des interférences occlusales qui sont la conséquence du déplacement des dents, une maladie dégénérative de l'articulation due au déplacement du condyle et à la contracture produites par des spasmes musculaires répétés. C'est ainsi qu'un état fonctionnel peut éventuellement produire un changement organique.

Le Dr Laskin a déclaré que la fatigue musculaire était la cause principale des spasmes musculaires. Une telle fatigue vient principalement de l'habitude de grincer des dents ou de serrer les dents pour combattre la tension. Le syndrome dysfonction-douleur est donc essentiellement une maladie psychosomatique. Il est souvent impossible de guérir complètement, chez certains individus, les maladies ATM, la cause principale, la tension, ne

pouvant être contrôlée de façon adéquate.

Le Dr D. E. Lupton, psychologue en chef au centre ATM décrit la victime typique de cette maladie comme étant une femme ayant dépassé la quarantaine, très nerveuse, inquiète, méfiante et coléreuse. En parlant de certains des patients du centre, il a déclaré: "ces patients avaient très nettement une caractéristique en commun: leur inhabilité à se détacher de la première personne avec laquelle ils avaient établi des liens d'importance. Ils étaient généralement attirés par des personnes passives et peu sûres d'elles qui leur donnaient une illusion de force. Leur dysfonction de l'articulation temporo-maxillaire a l'avantage de les mettre dans une situation de dépendance vis-à-vis de gens qu'ils dominaient normalement."

Palmarès

Quatre dentistes québécois viennent d'être nommés membres à vie du Collège des chirurgiens-dentistes de la province de Québec. Ce sont les Drs **C. E. Campeau**, de St-Columban; **I. E. Chalifoux** et **H. M. Halperin**, l'un et l'autre de Montréal et **G. O. Leblanc**, de Bedford.

Des contributions trimestrielles normales au fonds d'actions ordinaires du régime d'épargne-retraite de l'Association dentaire canadienne, investies tous les trois mois, de mars 1958 au 31 août 1968, auraient produit un intérêt de 8.96 pour cent. Placez votre argent maintenant dans le régime d'épargne-retraite. Ecrivez à: **The Administrator of CDA sponsored Pension and Insurance Plans, Professional and Industrial Pensions Ltd., 2249 Yonge Street, Toronto 7, Ont.**

dentistry in the news

The Association

President Brouillet Visits East

Canadian Dental Association President Henri Brouillet of Montreal visited dental societies in eastern Canada during September and October.

His schedule included meetings at Kirkland Lake, Ont., September 6-7, Charlottetown September 19, Moncton September 20, Halifax September 21, Quebec City September 27 and Corner Brook, Newfoundland, October 3.

Dr. Brouillet was accompanied by CDA Secretary W. G. McIntosh to the Newfoundland Dental Association meeting.

Canada and the Provinces

Dr. Coupland at CMA Ceremony

A former CDA president, J. P. Coupland of Ottawa, represented the Canadian Dental Association at an official ceremony September 20 to mark the laying of the corner-stone for the Canadian Medical Association's new \$1,250,000 headquarters in the national capital. Governor General Roland Michener officiated at the ceremony. The CMA House is located on Alta Vista Drive in south-east Ottawa near the National Defence Medical Centre.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on September 30: Government

Bond Fund \$13.738; Corporate Bond Fund \$14.952; Common Stock Fund \$25.967. Total assets (market value) of the plan were \$9,108,208.96.

The following common stock portfolio purchases and sales occurred during the preceding month: Bought 12,000 shares United Westburne; Sold 1,800 shares Canadian Pacific Railway and 3,000 shares Skil Corporation.

For further information please write to the Administrator of CDA sponsored Pension and Insurance Plans, Professional and Industrial Pensions Ltd., 2249 Yonge St., Toronto 7, Ont.

International Items

11 Canadians at FDI Varna Meeting

Eleven Canadian dentists were among the 1,659 who attended the 56th annual session of the Fédération Dentaire Internationale at Varna, Bulgaria, September 16-22. Forty-four countries were represented. Official delegates of the Canadian Dental Association were H. G. Poynton, Toronto; F. V. Currie, London, Ont.; H. R. MacLean, Edmonton; and CDA Secretary W. G. McIntosh, Toronto. Other prominent Canadians attending the meeting were A. E. Higgins, Toronto; M. C. Nordine, W. R. Pellow and J. M. Snelgrove, London, Ont.; D. K. Sutherland, Simcoe, Ont.; A. Vachon, Ottawa; and D. A. Eisner, Halifax.

W. Stewart Ross of England continues as president of the FDI. Other officers are J. Stork, Netherlands, president-elect; Harold Hillenbrand, USA, L. J. Baume, Switzerland, Jacques Charon, France, and A. Scheinen, Finland, vice-presidents; Hans Freihofer, Switzerland, speaker; G. H. Leatherman, Britain, secretary general; and R. Braun, Germany, treasurer.

The General Assembly budgeted for expenditures totalling £49,062 in 1969, but anticipated income of £46,200 is expected to leave a deficit amounting to £2,862. The Assembly agreed that member association subscription rates should in future be based on the US dollar. In

1969 member associations will pay \$39 for each 100 members. This will be increased to \$42 in 1970 and subsequent years. Corresponding members will pay \$280 and affiliate member associations \$28. It was also agreed to amend the Regulations to introduce an intermediate penalty loss of voting rights for member associations who fail to fulfil their financial obligations for two consecutive calendar years. In the case of voting and non-voting member associations, membership will be automatically terminated after failing to fulfil financial obligations for three consecutive calendar years.

The FDI will again visit New York October 11-18, 1969, to hold its 57th annual session jointly with the American Dental Association. The headquarters hotel will be the Park Sheraton. Bucharest, Rumania, will be the site of the 58th annual session from September 26 to October 1, 1970; June 18-23, 1971, are the dates for the 59th annual session in Munich, Germany; and the XVth World Dental Congress will be held in Mexico City October 22-27, 1972.

Data obtained from 52 countries on dental manpower and training, the incidence of dental diseases, and dental health services will be available in 1969 in printed form.

Working papers on specialization in dentistry, group practice, working postures, functional equipment and dental services in hospitals are available in English, French and German from G. H. Leatherman, FDI secretary general, 64 Wimpole St., London W.1, England.

Dixie Seminar Set for Jan. 9-12

The American Institute of Oral Sciences will sponsor the third Dixie Dental Seminar at the Diplomat West Hotel, Hollywood, Florida, January 9-12, 1969.

J. J. Pindborg, M. D. Amsterdam and M. A. Lynch will be the principal speakers. The fee, \$225, includes tuition, lodging, meals and gratuities. Wives will be admitted at a nominal fee.

Additional information may be obtained from S. N. Bhaskar, United States Army Institute of Dental Research, Wal-

ter Reed Army Medical Centre, Washington, DC 20012, USA.

Midwest Periodontology Meeting in February

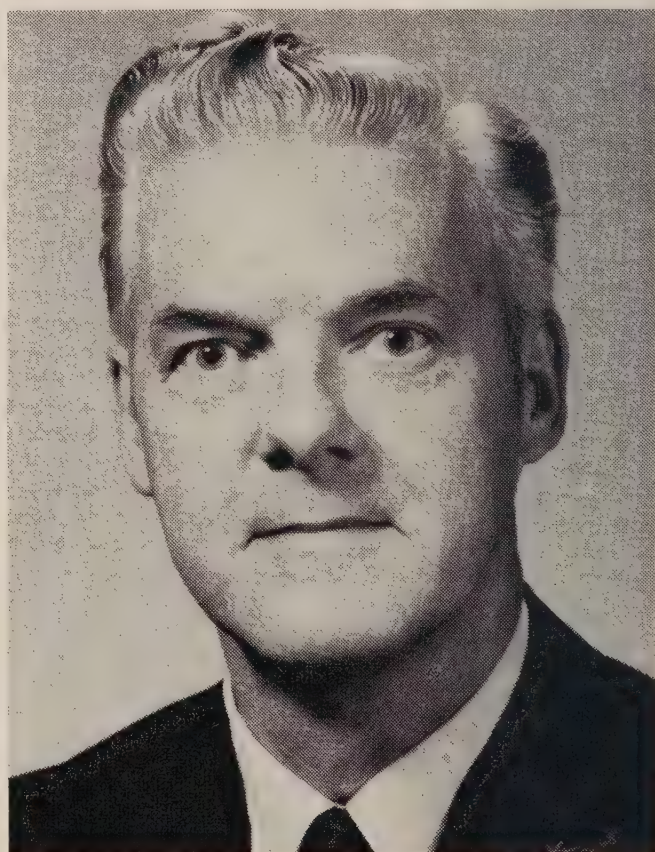
Canadian dentists have been invited to attend the annual meeting of the Midwest Society of Periodontology at the Sheraton Blackstone Hotel, Chicago, February 1-2, 1969. The program features a two day symposium on soft tissue and bone as related to periodontology.

Further information may be obtained from R. L. Wescott, 636 Church St., Evanston, Ill. 60201, USA.

Dental Organizations

Endodontic Academy Invites Applications for Membership

The Canadian Academy of Endodontics has repeated its invitation to all Canadian



J. F. Reid, North Vancouver, was recently elected president of the British Columbia Dental Association. Dr. Reid is also a member of the Board of Governors of the Canadian Dental Association.

dentists to join the organization as active or associate members. The Academy, a section of the Canadian Dental Association, was organized in 1964. Those interested in joining should contact the secretary, L. J. Rosen, Suite 20, 3465 Côte des Neiges Rd., Montreal 25, Que.

Vancouver Dentists Elect Dr. Mitchell

F. A. Mitchell of West Vancouver was recently named president of the Vancouver and District Dental Society. He succeeds R. C. Tully of Vancouver.

Dr. O'Brien Heads Atlantic Orthodontists

W. B. O'Brien of Fredericton, NB, was elected president of the Atlantic Provinces Orthodontic Society when that organization held its annual meeting at the Keltic Lodge in Halifax. E. J. Whyte of Sydney is secretary-treasurer.

Canadian Dental Schools

Dr. Ratté to Head Laval Dental School

The Université Laval, Quebec City, has announced the selection of Gustave Ratté as director of its new dental school. The appointment was made on September 11.

Establishment of the school was the principal recommendation in a report prepared last year for the Association of Quebec University Presidents and Princi-

pals. Laval announced on March 21, 1968, that it would accept its first dental students in 1971.

Dr. Ratté, who practises in Quebec City, has a distinguished record of service in organized dentistry and dental education. A native of St-Augustin de Portneuf, Que., he earned a BA at Laval in 1925 and a DDS at the Université de Montréal in 1929. Dr. Ratté is a former member of the Quebec Dental Examining Board, a past president of the Quebec City Dental Society, a past president and governor of the Canadian Dental Association, a member of the Université Laval Health Sciences Centre Planning Committee, and a current governor of the College of Dental Surgeons of the Province of Quebec.

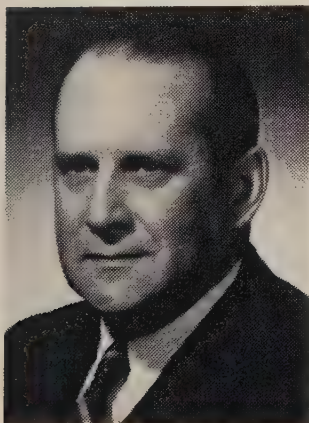
Dr. Ratté's contributions to the cultural and social advancement of dentistry have been widely recognized. In 1965 Laval conferred on him a "Bene Merenti" Papal Medal. In 1967 he was awarded the City of Paris Silver Medal for "outstanding professional service." That year Dr. Ratté was also the recipient of a Canadian Centennial Medal for "service rendered to the nation."

Toronto U Promotes Drs. Anderson, Hunt

P. G. Anderson and A. M. Hunt have been appointed associate deans of the Faculty of Dentistry, University of Toronto, effective July 1. Both will continue to serve in their present respective positions as director of clinics and director of the Division of Postgraduate Dental Education.

Dr. Anderson joined the part-time staff of the Department of Operative Dentistry in 1930. He was promoted professor of operative dentistry in 1947 and became full-time director of clinics in 1957.

Dr. Hunt joined the faculty in 1957 as an associate in dental public health. He was promoted professor in 1965 and became director of the Division of Postgraduate Dental Education last year. He is currently chairman of a special committee which is planning the expansion of postgraduate dental education at Toronto.



Gustave Ratté



The Advisory Committee to the Faculty of Dentistry, University of Western Ontario, held its inaugural meeting in London October 2. In attendance were: (front row, l. to r.) Sister Mary Elizabeth, W. R. Cunningham, O. H. Warwick, H. W. Reid (chairman), P. G. Dellow, Dean R. Catherine Aikin and A. L. Swanson; (standing, l. to r.) Dean W. J. Dunn, K. F. Pownall, J. E. Speck, D. J. Kenny, A. G. Parnell, O. W. Crummey, D. A. Cheetham, T. H. Wachna, Dean D. Bockin, L. J. Schiller and W. J. F. Bugg. The full 18 member committee includes representatives of the university, the teaching hospitals, the Dental Services of the London Board of Education and of Westminster DVA Hospital, the Canadian Dental Association, the Royal College of Dentists of Canada, the Ontario Dental Association, the Royal College of Dental Surgeons of Ontario, the National Dental Examining Board of Canada, and the London and District Society.

Canadian Schools' Capacity Climbs

Canada's nine dental schools now have a total first year capacity of 389 students, up from 375 last year. The increase is mainly due to a larger class at the University of British Columbia.

From 1957 to 1967, the schools increased their first year capacity by 90 per cent. By 1972 they expect to have facilities for approximately 600 first year students. These projections include increased capacities at the Universities of British Columbia, Alberta and Dalhousie to an anticipated 40, 80 and 64, respectively. The University of Western Ontario will also expand its first year enrolment, ultimately reaching a maximum of 52 students. The University of Saskatchewan, which projected an initial class of 10 students this year, will eventually enrol a total of 150. McGill University intends to increase its first year capacity to 70 at a future date. There are no immediate plans for expansion at Montréal or Toronto, although Toronto intends to expand postgraduate education. Current expansion at the University of Manitoba will enable that school to enrol 50 students annually by 1975. By then, Quebec's Université Laval also expects to graduate its first dentists. Meanwhile, the possibility of additional schools is being consid-

ered for Ottawa, Hamilton, Kingston, Toronto (York) and Calgary.

Economics

Nova Scotia Will Introduce Non-Premium Medicare Next April

Nova Scotia's health minister, R. A. Donahoe, has announced that his province will introduce a public medical insurance plan April 1, 1969. The plan will involve no premium payments for any persons who have been residents of the province for three months. It thus differs from comparable schemes in British Columbia and Saskatchewan.

Nova Scotia's plan, to cost about \$40 million in its first year, will be financed about equally by the federal and provincial governments. The province will pay its share out of general tax revenues, and this will mean increased taxation.

The plan will likely be administered by Maritime Medical Care Inc., a physician-owned medical service corporation. After April 1, 1969, all Nova Scotia residents registered in the insurance plan will be eligible for benefits. These include physicians' services in the office, at the hospi-

tal or at home. Mr. Donahoe said that a study of in-hospital services by dentists is under way and some of these may be covered under the plan.

Quebec College Sets New Requirements for Internships, Residencies

Interns selected by dental department directors of Quebec hospitals will henceforth have to be approved by the College of Dental Surgeons of the Province of Quebec. The candidates will be required to submit their records and pass an examination set by the College before they are admitted to the internship.

The College has also adopted new definitions for interns and residents. An intern is defined as "a student of dental surgery or a non-licensed graduate in dental surgery, registered at the College and permitted to render his services in an establishment." A resident is defined as "a dental surgeon registered at the College and named, following his internship, to a position recognized by the College for the purpose of postgraduate education or with the aim of obtaining a specialist's certificate."

Convict 93 for Illegal Practice in Quebec

Ninety-three persons were convicted for practising dentistry illegally in Quebec last year, according to the September issue of *Information* published by the College of Dental Surgeons of the Province of Quebec.

Fines totalling \$19,450 were levied between July 1, 1967 and June 30, 1968. This is an increase of four convictions and \$975 over the previous year's totals.

Toronto Welfare Recipients to Get Dental Care

A program of emergency dental care for 30,000 short-term welfare recipients was approved September 10 after the Metropolitan Toronto Executive Committee authorized a \$134,784 expenditure to meet

the first four months of operation. The committee also approved an agreement with the Ontario Dental Association to operate the program which was approved in principle last February.

Metropolitan Toronto officials estimate that 12,000 out of the 30,000 welfare recipients require some form of corrective dental care. Half of the cost of the program, estimated at \$432,000 per year, will be paid by the Province of Ontario.

British Columbia Restores Clinical Exams for NDEB Applicants

Dentists who hold the certificate of the National Dental Examining Board of Canada must henceforth pass a provincial clinical examination if they apply to practise in British Columbia. The decision by the British Columbia College of Dental Surgeons became effective on November 1. It restores a former policy, discontinued since 1957, whereby the College required all NDEB applicants to submit to a clinical examination.

Further information concerning the clinical examination may be obtained from W. Ross Upton, registrar, College of Dental Surgeons of BC, 325-925 West Georgia St., Vancouver 1, BC.

Food and Drug Clerks to Have Dental Plan

British Columbia's retail food and drug clerks may soon have a dental plan thought to be unique in Canada.

According to the *New Westminster Columbian*, the new prepaid dental plan may cover over 10,000 members and dependants and will have a wider range of benefits than any other existing dental plan in Canada.

No Dental Equality Despite Removal of Financial Barriers

A sociological dental survey conducted in two contrasting English towns shows that non-manual workers tend to lose fewer teeth and wear fewer full dentures than

manual workers. Thus, despite the removal of major financial barriers by Britain's National Health Service, there is still evidence of class differences in dental conditions. One of the towns — Salisbury — had fewer than the national average of persons per dentist. The other — Darlington — had more persons per dentist than the national average.

American Dentists Form Political Action Group

A nation-wide committee of dentists has been organized in the United States to assure that the profession will continue to play an effective role in federal legislative developments of concern to dentistry.

The American Dental Political Action Committee (ADPAC) will offer its services to candidates and legislators of either of the major political parties who take leadership roles in support of dentistry's legislative objectives.

Three American Unions May Bargain for Dental Care

At least three large industrial unions in the United States will place high priority on dental care in upcoming collective bargaining negotiations, according to the US National Association of Dental Service Plans. The United Automobile Workers, who settled for drug benefits in their latest negotiations, are expected to give dental care the highest priority in 1970.

The NADSP believes that 1970 will be a crucial year for dental prepayment. K. J. Ryan, NADSP president, has urged state dental associations to provide financial backing now if their states are to have dental service corporations by 1970. "If we do not have a vast majority of our states with either active service corporations or at least administrative agencies by that date, the dental profession will face the alternative of a great diminution of its influence in policy and plan development," he said.

In the near future the NADSP hopes to adopt an identifying emblem and name

which can be used by all active member dental service plans. The emblem and name is expected to be a dental counterpart for 'Blue Cross' and 'Blue Shield' employed by prepayment plans sponsored by hospital and medical organizations respectively.

Public Health

Dr. Feasby Named Ontario Dental Director

R. E. Feasby, Toronto, has been appointed senior consultant in public health dentistry to the Ontario Department of Health. He succeeds F. A. Kohli who retired in January 1967.

Dr. Feasby was previously director of the dental division of the City of Kingston for seven years and assistant director of dental services for the City of Toronto for five years. In 1966 he was appointed director of dental services for Metropolitan Toronto's Borough of North York.

Research

Phosphate Containing Gum Test-Marketed in BC

Warner-Lambert Canada Ltd. recently began to test-market a new chewing gum containing sugar which has been treated with dibasic calcium phosphate to counteract the cariogenic effect of this rigidly fermented carbohydrate. The new product, called 'Action,' is distributed by Adams Brands Ltd., a Warner-Lambert division.

Two clinical studies of 30 and 36 months' duration in over 500 school children produced significantly less dental caries in experimental subjects chewing the phosphate-containing gum, according to P. L. Johnson, Warner-Lambert's director of dental therapeutics. The use of the dibasic calcium phosphate treated sugar resulted in a gum which has the

flavour, chewing texture and acceptability of regular chewing gums, Dr. Johnson said.

Deaths

Campbell, David Sidney. 34. Kingston, Ont. Dalhousie University, 1960. 2-9-68. Survived by Edith (wife); two sons; his mother; Mrs. H. A. Brown (sister); and Gerald (half-brother).

Charbonneau, J. A. 47. Montréal. Université de Montréal, 1947. 22-9-68.

Deans, William James Martin. 86. Windsor, Ont. Royal College of Dental Surgeons of Ontario, 1906. 31-8-68. Survived by Mrs. W. J. M. Martin (wife). Associate member CDA.

Denenberg, Benjamin. 62. Montreal. McGill University, 1934. 20-8-68. Survived by Jesse (wife); David (brother); and Sadie (sister).

Grant, Edmund A. 85. Toronto, Ont. Royal College of Dental Surgeons of Ontario, 1906. 29-9-68. Associate member CDA. Survived by Ruth (wife); Cecil (son); Lois (daughter); Alan (brother); Mrs. Harold Bickerstaff, Mrs. Harley Shutt, Mrs. Edgar Love (sisters); and two grandchildren.

Granovsky, Tevia Leib (Theodore). 75. Toronto, Ont. Royal College of Dental Surgeons of Ontario, 1921. 29-9-68. Survived by Irene (wife); Jack Shelton Grant (son); and Mrs. F. R. Smith (daughter).

Gunning, William Nelson. 90. Victoria. Philadelphia Dental College, 1904. 18-8-68. Survived by Alec (son).

Haverstock, Albert Borden. 65. Halifax. Dalhousie University, 1927. 22-8-68. Survived by Kathleen (wife) and Miss Nellie Haverstock, Mrs. A. J. Gladwin, Mrs. M. D. Skerry and Mrs. W. G. Murphy (sisters).

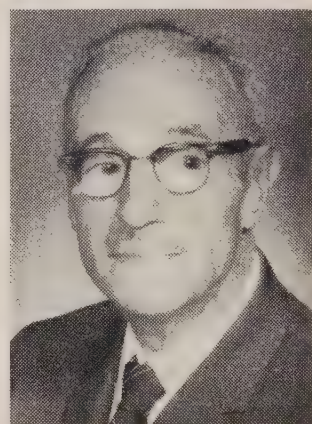
Hilliard, James Arthur. 96. Kitchener, Ont. Royal College of Dental Surgeons of Ontario, 1898. 19-9-68. Survived by Arthur (son) and Mrs. Gordon Vennels (daughter). Honorary member CDA.

MacLean, John David. 69. New Glasgow, NS. Dalhousie University, 1929. 2-8-68.

Survived by Mary (wife); David Alexander (son); Mrs. Stephen Haggan (daughter); Mrs. James Chisholm, Mrs. Norman Cook, Mrs. Donald Sutherland and Mrs. J. A. Fraser (sisters); and five grandchildren.

Rose, Ross Shibley. 76. Victoria. Northwestern University, 1914. 12-8-68.

Awards and Honours



R. S. Woollatt

R. S. Woollatt was made an honorary member of the Academy of Dentistry (Toronto) when that organization held its opening annual dinner on October 24. A 1909 graduate of the Royal College of Dental Surgeons of Ontario, Dr. Woollatt was president of the Toronto Academy of Dentistry during 1927-28. He served as president of the Ontario Dental Association in 1937-38 and as chairman of the ODA Benevolence Committee for many years. He is an honorary life member of the Faculty Club, University of Toronto, and a member of the Omicron Kappa Upsilon Honour Dental Society. Except for a period of five years when he served with the Canadian Army Dental Corps, Dr. Woollatt was on the staff of Toronto's Faculty of Dentistry from 1910 until 1954. Upon his retirement he was appointed professor emeritus, University of Toronto.

Four Quebec dentists have been awarded life membership in the College of Dental Surgeons of the Province of Quebec. They are **C. E. Campeau**, St. Columban; **I. E. Chalifoux** and **H. M. Halperin**, both of Montreal, and **G.-O. Leblanc**, Bedford.

Restorative Dental Materials

F. A. Peyton. Ed. 3. St. Louis, C. V. Mosby Company, 1968. 553 p. Illus. \$14.05

As indicated in the preface, this is primarily an elementary text for beginning dental students. There are, however, several chapters that make excellent reading for the graduate. One of these describes the technique for casting inlays and small restorations. The additional information on biophysical principles applied to dentistry is of general interest, especially the stress on advances in restorative dental materials recorded in recent years.

The first objective in teaching dental materials is to make the student more profi-

cient by the time he commences clinical instruction. This text sets an excellent pattern in meeting this objective. The illustrations throughout are very good and the content is well organized. This edition makes an excellent text for dental students.

C. G. Duke

How to Test and Hire for the Professional Office

N. A. Shore and Miriam F. Shore. Philadelphia and Toronto, J. B. Lippincott Company, 1967. 186 p. \$9.50

Most dentists regard finding, training and keeping good employees as the most important consideration in a busy, progressive dental practice. The selection and utilization of such personnel is a primary concern of the employer who is responsible for the health and well-being of his patients, for the financial conduct of the practice and for policy decisions effecting his employees. He must consequently exercise great care in assembling competent supporting staff. He must select the right employees. Each employee must have a clear understanding of her specific duties. She must be informed about office rules when she is hired. Office policies should be applied uniformly to every staff member.

380 Restorative dental materials

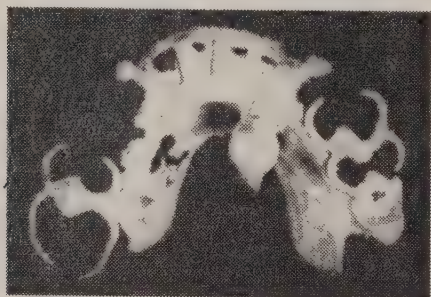


Fig. 11-10 A dental restoration, showing the interface between the different materials.



Fig. 11-11 A dental restoration, showing the interface between the different materials.

the study of dental materials is the fact that the dental student must be able to select the material of the restoration that is most appropriate. Knowledge of the properties of the different materials is essential in making this selection. It is possible to select a material that is not suitable for the purpose of the restoration.

proper selection practices are not observed. In Fig. 11-12, a dental restoration is shown from the lingual aspect, revealing the interface between the different materials. The restoration is shown from the lingual aspect, revealing the interface between the different materials.

800 metal plates 381

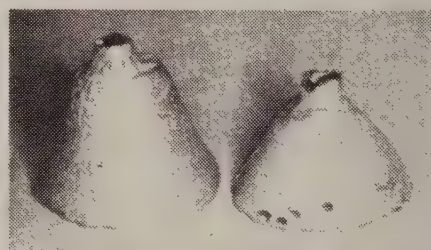


Fig. 11-12 A dental restoration, showing the interface between the different materials.



Fig. 11-13 A dental restoration, showing the interface between the different materials.

restoration, and in doing so, the dental student must be able to select the material of the restoration that is most appropriate. Knowledge of the properties of the different materials is essential in making this selection. It is possible to select a material that is not suitable for the purpose of the restoration.

When proper selection practices are not observed, the dental student must be able to select the material of the restoration that is most appropriate.

As previously mentioned, the dental student must be able to select the material of the restoration that is most appropriate. Knowledge of the properties of the different materials is essential in making this selection. It is possible to select a material that is not suitable for the purpose of the restoration.

The authors suggest specific policies for the small dental office. These are excellent, and they may be modified to suit the needs of the individual practitioner.

Elsewhere the authors advocate the use of a form reflecting the employer's analysis of the job. This extremely detailed document is intended to help the dentist rate the job and then find the proper employee. Unfortunately, most average busy dentists are not experienced personnel managers and they may have difficulty in filling out the form as given in the text.

Detailed chapters on recruitment, screening, applications, tests, interviews, references and a final appraisal and selection of the right person for the position are intelligently laid out. The recommended procedures are very logical and can be applied in small or large practices. The extra time and thought entailed by this method of selection will be compensated by employment of the most competent persons and by fewer subsequent personnel changes.

Shore and Shore have given us a concisely written text. Each section is clearly defined with headings and subheadings so that information on each subject follows in logical sequence. The authors recommend forms and interview techniques that can save a great deal of valuable time. Their book may spare the frustrations of those readers who have been plagued by a rapid turnover of staff.

R. M. Duncan

Barnacle Cement as a Dental Restorative Adhesive

N. F. Cardarelli. Bethesda, Maryland; National Institute of Dental Research; National Institutes of Health Publication No. 151; US Government Printing Office, 1968. 49 p. Illus. Single copies free

This booklet has been published in an effort to stimulate additional interest and accelerate research into the total characterization of the barnacle adhesive. It reports previous research by the B.F. Goodrich Company, and current research supported by the National Institute of Dental Research at the University of Akron. It presents a survey of the barnacle cement analysis program to date and the background to a rather fascinating scientific adventure.

Although the purpose of this study is to develop an adhesive dental restorative, such a material would also have considerable significance for medical uses. At present, the restoration of decayed teeth requires that the filling be mechanically locked into the teeth. This involves removal of sound tooth structure and, in some instances, a sacrifice of tooth strength. If an adequately adhesive filling material were available, it would be

necessary to remove only the diseased tooth structure and place the filling directly. Considerable economy in the costs of repairing teeth as well as conservation of sound tooth structure would result.

Single copies of this booklet can be obtained by writing to the Collaborative Research Office, National Institute of Dental Research, Bethesda, Maryland 20014, USA.

Dentists, Patients, and Auxiliaries

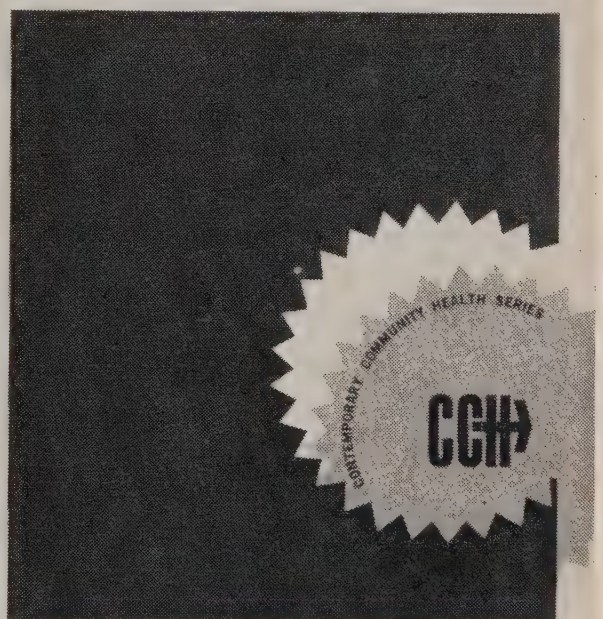
Margaret Cussler and Evelyn W. Gordon. Pittsburgh, University of Pittsburgh Press, 1968. (Available from Burns & MacEachern Ltd., Don Mills, Ont.) 103 p. \$5.50

This book is based on a two year study carried out from 1965 to 1967 by two sociologists under the auspices of the Division of Dental Research of the US Public Health Service. The study focused on expanded use of auxiliaries in the dental office (dental assistants and dental hygienists) and outside (dental supply salesmen and laboratory technicians).

The authors believe that contemporary dentistry and medicine share a major unsolved problem; their technology has far

Dentists, Patients, and Auxiliaries

MARGARET CUSSLER
AND EVELYN W. GORDON



outstripped their sociology. The study is exploratory in the sense that changes in human relations in the dental office are considered at least as important as changes in efficiency or productivity. It is also exploratory in that the researchers observed, listened, and interviewed in dental offices as well as at other sites.

The early sections of the book deal with how the dentist adapts in attitude and practice to his physical and technological environment and how he relates to fellow professionals who set standards for his professional role.

As a result of this study the authors believe that the responsibilities of auxiliaries will undoubtedly increase. Patients have accepted auxiliaries well, but there has been a resultant change in the personal relationship between dentist and patient. Any dentist who utilizes auxiliaries on a wide scale "must resign himself to working at a fast pace with little contact (or appreciation) from the patient, but he will also have the prospect of a relatively large income as his role becomes that of a scientific administrator."

The study indicates that the dental supply salesman is highly appreciated because of the wide range of services he offers to the dentist and to auxiliaries. The laboratory technician, on the other hand, seems to be in a developing conflict with the dentist. The answer to this conflict may lie in the large laboratories who, through their technical skill on an assembly line operation, could supply this essential service to the dentist while being separated both physically and emotionally.

G. C. Swann

Modular Casework Guidance for Dental Treatment Rooms

USAF School of Aerospace Medicine.
Dental Sciences Division, Texas, 1967. 99
p. Illus. \$3.00 for paperback type, \$0.65 for
microfiche

The title of this publication is confusing. "A Guide to Modular Cabinet Arrangement in Dental Treatment Rooms" would have been a more informative designation.

This 99 page brochure has 97 pages of photographs and illustrations with captions, supported by a one page introduction and a one page conclusion. Five basic operating rooms are presented — one each for prosthodontics, radiography, restorative dentistry, periodontics and oral surgery, and one variation. Eight photographs illustrate the arrangement of these rooms. Ninety-seven photographs indicate cabinet and drawer storage of instruments and supplies. Only one photograph is used to illustrate a stack of six tray set-ups; these set-ups are cov-

ered by white towels and there is no indication of their purpose or content. One of the first steps in organizing a modern dental treatment room is to have tray set-ups for frequent operations. This philosophy is not evident, however, in *Modular Casework*.

According to Corbusier, "one of the most important elements of any design is the intention behind the design." The reader of *Modular Casework* is left to wonder about these intentions. One purpose is obviously to serve dentists with different work habits, some good and some bad. These work habits are established in the first years of practice when the dentist's back is strong and the desire to please his patients may be coupled with insecurity about his ability to practise. It is not a time to be critical of the environment, but rather a time to adapt to it. The trails to better work habits and optimum environments must be blazed at the undergraduate level. The young graduate will then accept four-handed, low-seated, washed field dentistry and will surround himself with an appropriate environment. Tray set-ups should be recognized as being fundamental for a sterile, efficient approach. Pre-organized trays should therefore be available to graduating dentists and to dental officers in dental clinics.

A work station should be judged by the hand and body motions that are developed in its use. If these are healthful, efficient and pleasant, the work station is satisfactory. *Modular Casework* does not reassure the reader that this is the main consideration of this publication. Perhaps we are asking too much if we expect *Modular Casework* to say anything about work habits; but the booklet deals with the storage-work surface component of the dental environment and should be judged by its influence on the people who use it.

D. G. Coburn

Dental Roentgenology Review

W. N. Gallagher. New York, The William-Frederick Press, 1967. 89 p. \$3.00

This 80 page paperback is a question-and-answer review of the technical and interpretative aspects of dental radiology. Its greatest appeal would be to candidates preparing for board examinations where information is readily available in capsule form. For the most part the material is precise, to the point and factual, but there are some shortcomings. It is disturbing to see the maximum safety exposure for dental radiography given as 180 seconds. Depending on the output of the apparatus (most dental machines deliver 1-2 r/second at the cone tip at 65 kVp) this amount of radiation delivered to a single area of skin could produce erythema.

Richards observed that 165 r in air would produce erythema in 75 per cent of his subjects; yet the erythema dose is stated in this digest to be 400 r! Again, the 'tolerance dose' is given as 0.2 r per day; this maximum limit was first reduced to 0.1 r per day in 1936, with further downward revisions in 1948 and 1957. The statement that "the increased forceful penetration of oral tissues due to increased kilovoltage reduces scattered and secondary radiation to a minimum" is, to say the least, unique. There is undoubtedly enough information in this book to enable a candidate to negotiate his board examinations successfully, but he would be left with some serious misconceptions and misinformation.

D. S. Stoneman

Applied Dental Materials

J. N. Anderson. Ed. 3. Oxford and Edinburgh, Blackwell Scientific Publications, 1967. (Available from The Ryerson Press, Toronto) 380 p. Illus. \$14.00

In this third edition Anderson has again compiled his notes on dental techniques and materials in a readable fashion. Authors tend to become more abstruse when they revise their books, but Anderson makes his previously excellent text even better. Good diagrams, clear continuity and classification, and an absence of irrelevant material are the hallmarks of this work. Practitioners who want to update their background knowledge of materials and techniques and not simply acquire further 'how-to-do-it' information should read this book. Clinical students should spend several nights with it. *Applied Dental Materials* is acceptable as a text for materials courses or for the alert practitioner. In short — I like it!

R. H. Roydhouse

Psychologie et odontostomatologie

J. Manné. Paris, Librairie Maloine, 1967. 160 p. 20F.

Voici une introduction à la psychologie que doit savoir le chirurgien-dentiste. En effet il est normal de nos jours, que le dentiste ait une connaissance assez étendue de la psychologie contemporaine s'il veut apporter une contribution plus efficace aux soins "mécaniques" qu'il prodigue. Il est grandement temps qu'on cesse d'être des

mécaniciens au service d'appareils de plus en plus perfectionnés mais qui engendrent quand même la peur et donnent aux patients l'impression d'être des robots, des cobayes. Conséquemment, voici un ouvrage intéressant qui invite à la réflexion et à la recherche. Je le trouve cependant un peu trop schématique, "genre catalogue", et difficile pour nous qui ne sommes pas diplômés en psychologie. Aussi ne peut-il être question d'investigation psychologique chez le dentiste qui n'a pas l'entraînement voulu; l'intuition et l'expérience ne sont pas suffisantes pour avoir un comportement social et professionnel de haut savoir. On aimerait ce volume plus explicite, plus vulgarisateur et avec une plus grande part attribuée à l'odontostomatologie. Cependant il y a là des conclusions pratiques importantes et intéressantes. Est-il parfois trop absolu, un peu rigide? De toute façon il invite à lire, à se donner une solide formation psychologique afin que le dentiste soit de plus en plus enclin à considérer le côté humain de sa profession, le côté psychosomatique, et cela est très important.

On a prouvé depuis longtemps que les expériences dentaires sont non seulement des causes de "stress" mais peuvent également provoquer des troubles psychiques post-opératoires. Selon Knox et Stengel, 10 pour cent de nos interventions dentaires développent ou créent des manifestations psychotiques, névrotiques, et il est plutôt certain que les extractions (trop souvent massives) et les restaurations prothétiques en sont la cause. Le terme "psychosomatique" a sa place de nos jours et il est de notre devoir de nous appliquer davantage à créer un climat favorable à nos patients. Ce terme implique une attitude plus saine vis-à-vis de la maladie et une attitude plus positive vis-à-vis du patient. N'oublions pas que les maladies dont souffrent nos patients ne sont pas seulement le fonctionnement déréglé d'un organe (la bouche avec les dents et les tissus environnants) mais un trouble de l'être dans son ensemble. Je souhaite ardemment que dans nos universités, les facultés dentaires inscrivent des cours en ce sens dans leur programme d'études, car ceux qui veulent parfaire leurs connaissances dans le domaine de la dentisterie psychosomatique doivent puiser dans des livres rarement appliqués à la dentisterie.

Le livre de Jacques Manné ne peut qu'être utile et donner une impulsion pour que la formation du futur chirurgien-dentiste soit vraiment complète. Charles Baudoin résume bien toute ma pensée lorsqu'il dit: "La médecine courante connaît fort bien l'action des agents physiques sur l'homme; il reste cependant à devenir plus attentif qu'on ne le fut à la réaction de l'esprit humain."

Paul Dionne

Additions • Acquisitions

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SOLOW, B. The pattern of craniofacial association; a morphological and methodological correlation and factor analysis study on young male adults. (Acta Odontologica Scandinavica, vol. 24, suppl. 46, 1966) 174 p. \$10.00

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Britain tackles the foot and pound disease

Britain, long the bulwark of the imperial system of weights and measures, is going over to the metric system. About half the world's population — a billion and a half people — have switched to the metre in the past 20 years. Ahead of Britain lie seven more years of work and adaptation, but after 1975 Canada and the United States will likely be the only big countries still clinging to the old imperial system.

The metric system has long been championed as the most efficient system that man is likely to invent. Its simplicity is a far cry from the confusion and the mental and material wastefulness of a jungle of flexible and often unrelated standards that range from biblical cubits to yards which King Henry I allegedly determined from the distance between the tip of his nose to the end of his thumb. At the heart of the metric system is the metre defined as one ten-millionth of the distance from the equator to the pole and standardized on the wave length of the orange-red light emitted by krypton₈₆.

Metrication, as the conversion is known in the United Kingdom, was not imposed by the government; industry asked for it. More than 60 per cent of Britain's exports go to countries using the metric system, and many firms have been forced to run duplicate production lines using imperial and metric systems. But this will change as conversion proceeds.

Perhaps the most spectacular aspect of metrication will be the switch to decimal currency. Britain's 12 pence to the shilling and 20 shillings to the pound will be replaced with a new pound composed of 100 pennies by February 15, 1971. Before then, hundreds of thousands of coin-operated telephones and countless stamp vending machines will have to be adapted to the new coinage. Retail weighing machines that also compute price will have to be changed twice — first to fit the new coins and later to accord with metric units.

Industry and science are meshing their own timetables for conversion. Scientific journals are collaborating with the government in promoting the general adoption of the metric system. The *British Dental Journal* has already made the switch. But, say the conversion experts, the public must not be 'schizophrenic.' People must 'think metric' while at work and then come home and 'shop metric' too. That is why other moves are also under way as Britons prepare to desert the foot, pound and pint. Press and television weather reports, for instance, have already dropped the Fahrenheit scale in favour of Centigrade. The building industry has begun to manufacture window frames, doors, joists and roof timbers to metric dimensions. One of the results is a sharp reduction in the range of sizes formerly manufactured, with consequent savings in production, distribution and storage costs. Awaiting their turn for conversion are thousands of gasoline pumps that will henceforth measure fuel in litres and charge for it in new pence. This, according to the engineers, poses no serious problems. A bigger upset will be the conversion of highway signs and automobile speedometers from miles to kilometres. Motorists will have to translate

a sign like 'Manchester 300 Km,' to 186 miles until they learn to 'think metric.' And picture the hapless driver, caught exceeding a 40 kilometre speed limit, who vainly protests that he was doing no more than 26 mph. But these are viewed as temporary inconveniences, a small price for the anticipated benefits of metrication.

Meanwhile, here in North America industry is also looking into metrication. The cost of conversion, estimated in the United States at \$11 billion, is high but adherence to the old imperial system is even more expensive, costing Americans as much as \$10-\$25 billion in foreign trade every year. Given these facts, we ought to study Britain's example more closely.

An honour for London

The official opening of the new dental building at the University of Western Ontario last October 25 once again confirms London as a leading centre of the health sciences in Canada.

Western's school will reinforce Canada's dental resources, benefiting not only London by attracting highly qualified students and practitioners wishing to avail themselves of the most up-to-date facilities, but making vital contributions through desperately needed graduates and research to all of Canada. London can be justifiably proud of its new Faculty of Dentistry and its continuing role of producing high-calibre personnel for the health professions.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.

Radiation Hazards in Dentistry

To the Editor:

May I comment on the letter by Drs. G. R. Freeman and E. Adler in the October issue in which the question of radiation exposure of the eyes was discussed. In addition I would like to draw attention to the two excellent replies from Dr. D. W. Stoneman and Dr. A. G. Richards.

Although one would not dispute the factual findings of Drs. Freeman and Adler, their approach in my opinion is theoretical rather than practical. A more realistic perspective of the subject is obtained by reading the two replies.

I would also comment on their advice concerning the use of fast films. This could be misleading since, as a general rule, the faster the film the less the clarity of the resultant radiograph. It is true that with recent improvements certain brands of the faster films now available are on a par with some slow films which were used in the past. Nevertheless, when discussing film speed it is advisable to keep in mind the importance of a radiograph being of good diagnostic quality. There are many different brands of film on the market, and I think that the best advice that can be given concerning the selection of the most suitable type is to choose

the fastest one compatible with good diagnosis.

H. G. Poyton, FDS, HDD,
Chairman, Department of Radiology,
Faculty of Dentistry, University of Toronto,
Toronto, Ont.

Intravenous Anaesthesia

To the Editor:

I would like to comment further on Dr. S. L. Drummond-Jackson's letter in the November issue of the Journal.

It would appear from the content of Dr. Drummond-Jackson's letter that there can be no real comparison between British and Canadian standards in the teaching and practical application of general anaesthesia. I would seriously question that it is possible in three days of concentrated instruction to instil any precepts of safe anaesthetic practice into responsible individuals.

It may interest Dr. Drummond-Jackson that the 12 months' postgraduate course in anaesthesia offered at the University of Toronto is at present confined to one student. This limited enrolment is necessary in order to develop acceptable competence in the prescribed period. Nevertheless, we look forward to the day when adequate teaching facilities will enable every dentist to become proficient in the use of sedation techniques.

R. S. Locke, DDS, MS,
123 Edward St., Toronto, Ont.

Readers' Opinions of the Journal

To the Editor:

I read with interest your editorial in the September issue and would like to congratulate you on its very fine message. I feel sure that it will contribute greatly to the funds received by the Canadian Fund for Dental Education.

C. E. Peirce, President,
Ash Temple Ltd.,
243 College St., Toronto, Ont.

To the Editor:

You must be kidding.

The recent issue of the CDA Journal have dropped it far below the ranks of a 'throw away' dental journal.

Should you not be producing an educational, scientific dental which will help the Canadian general practitioner [sic] keep abreast of the rapidly changing technology and concepts?

If so you are failing dismally.

C. A. Casey, DDS,
4695 Sherbrooke St. W.,
Westmount 6, Que.

Communication d'une lectrice coréenne

Au rédacteur:

Après consultation de votre revue le *Journal de l'Association dentaire canadienne*, j'ai été très intéressée tant par le sérieux et le contenu de cette revue médicale qui ne manque pas de nous intéresser et informer sur les différents secteurs de la médecine dentaire.

A cet effet, je désirerais recevoir ce Journal en voulant bien m'indiquer la procédure nécessaire pour obtenir un abonnement qui pourrait débiter avec le numéro du mois d'août dernier.

En passant, permettez-moi de me présenter comme chirurgien dentiste, immigrante de nationalité coréenne, arrivée à Montréal depuis déjà trois mois. Je suis diplômée de l'Université de Séoul en Corée comme docteur en chirurgie dentaire. Actuellement je poursuis l'obtention d'une licence pour devenir praticienne dans la province de Québec. De plus, je projette l'an prochain de poursuivre mes études dans ma spécialité à l'Université McGill.

Je vous serais gré de m'informer sur les différentes publications concernant la médecine dentaire.

Soyez assuré, cher Rédacteur, de mon respect le plus profond pour l'initiative que vous poursuivez par la publication de votre Journal.

Dr In Hee Park,
825 est, rue Sherbrooke,
Montréal, Qué.

New method for surgical correction of maxillary protrusion

André Charest, DDS, FRCD (C) and
Guy Maranda, DDS, Quebec City, Que.

The authors describe a promising new one stage procedure for surgical correction of maxillary protrusion and mandibular re-trusion. Functional and aesthetic re-alignment of the teeth is achieved by sectioning the premaxilla after extracting the upper first bicuspid. The requisite amount of bone is removed and the fragment is repositioned and immobilized in the desired position. Combined with pre-surgical orthodontic treatment, the operation achieves even better results more quickly.

Ce n'est que récemment que nous voyons dans la littérature nord américaine, des travaux traitant des corrections chirurgicales des anomalies au niveau des pré-maxillaires supérieur et inférieur. Le but à atteindre dans ces corrections chirurgicales est d'obtenir en peu de temps, une position fonctionnelle et esthétique des dents par une section du pré-maxillaire après extraction de la première molaire. L'os de cette région est diminuée, le fragment est remis en position et immobilisé en position désirée. La correction chirurgicale de ces anomalies n'a pas pour but de remplacer l'orthodontie, mais de concert avec celle-ci, nous obtenons d'excellents résultats en un temps plus court. Ces interventions seront de plus en plus employées.

Surgical correction of the anterior portions of the maxilla and mandible has only been recently described in the North American literature.

In Europe Skogsborg (1926),¹ Bichlmayr (1942),² Schuchardt (1954),³ Holler (1955)⁴ and recently Obwegeser⁵ have reported surgical techniques for the correction of protrusion. Most of these authors suggest a two stage procedure involving first the palatal vault and subsequently the alveolar ridge. Others have

proposed a one stage procedure in both areas, using a tunnel under the palatal mucosa.

A new technique, developed by Wunderer (Austria)⁶ in 1962, was described three years later by Helene Metras at the Second International Conference on Oral Surgery in Copenhagen. This method has impressed us since we began to use it in 1964 to correct maxillary deformities.

Surgical correction of these defects aims at re-establishing functional and

aesthetic relation of the teeth in the shortest possible time. This is done by sectioning the premaxilla and re-positioning the anterior fragment in a more appropriate relationship. The operation must be performed without interrupting the vascular supply to the sectioned region, thereby preventing ischaemia of the fragment and possible devitalization of the anterior teeth. Our technique depends on the blood supply obtained from the labial mucosa.

OPERATION

Maxilla. — The first bicuspidis are removed. A mucosal incision is made from the sulcus and extended to the alveolar crest. The mucosa and periosteum are dissected up to the pyriform aperture. The contralateral sulcus and alveolar mucosa are treated similarly. The incision is continued on the palatal vault from bicuspid to bicuspid passing behind the posterior portion of the naso-palatine canal. The mucoperiosteum is dissected up to the molar region.

Using a high-speed surgical bur, the premaxilla is sectioned on one side starting at the nasal pyriform aperture and continuing across to the vertical cut in the alveolar process at the first bicuspid (Figure 1). The contralateral alveolar crest is treated in the same way. The palatal vault is cut from side to side (Figure 2).

After making a vertical incision of the labial fraenum, the mucosa and periosteum are dissected to expose the nasal spine. The nasal septum is dissected up to the transpalatine section and about 1 cm. of the septum is removed vertically. The premaxilla should now be totally free; if not, the fracture is completed with an osteotome.

The fragment is now rotated upward allowing direct vision of the entire field. It is then easy to remove the amount of bone necessary to obtain the desired position. Finally the mucosa is repositioned and sutured back in place.

Mandible. — In mandibular retrusion a mucosal incision is made starting from

the molars, outlining the anterior portion of the mandible up to the opposite molars. Special care is taken to avoid the mental nerve. The lingual mucosa is elevated in the bicuspid region. The buccal and lingual cortical plates between the cuspid and bicuspid are sectioned vertically. The buccal and lingual apical portions are sectioned from the labial aspect. The resulting fragment is detached with an osteotome and rotated posteriorly. The symphysis is then reduced so that the

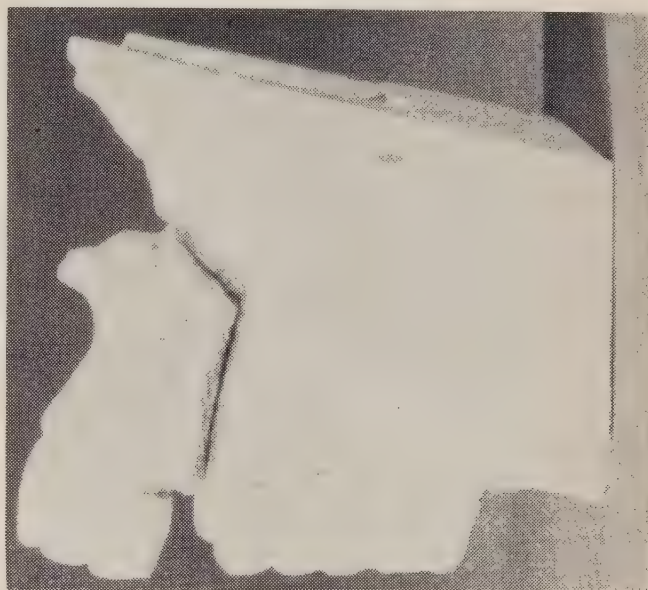


FIGURE 1 Cast of maxilla showing the lateral line of section.



FIGURE 2 Cast of maxilla showing palatal view of the surgical field and the premaxilla rotated upward.

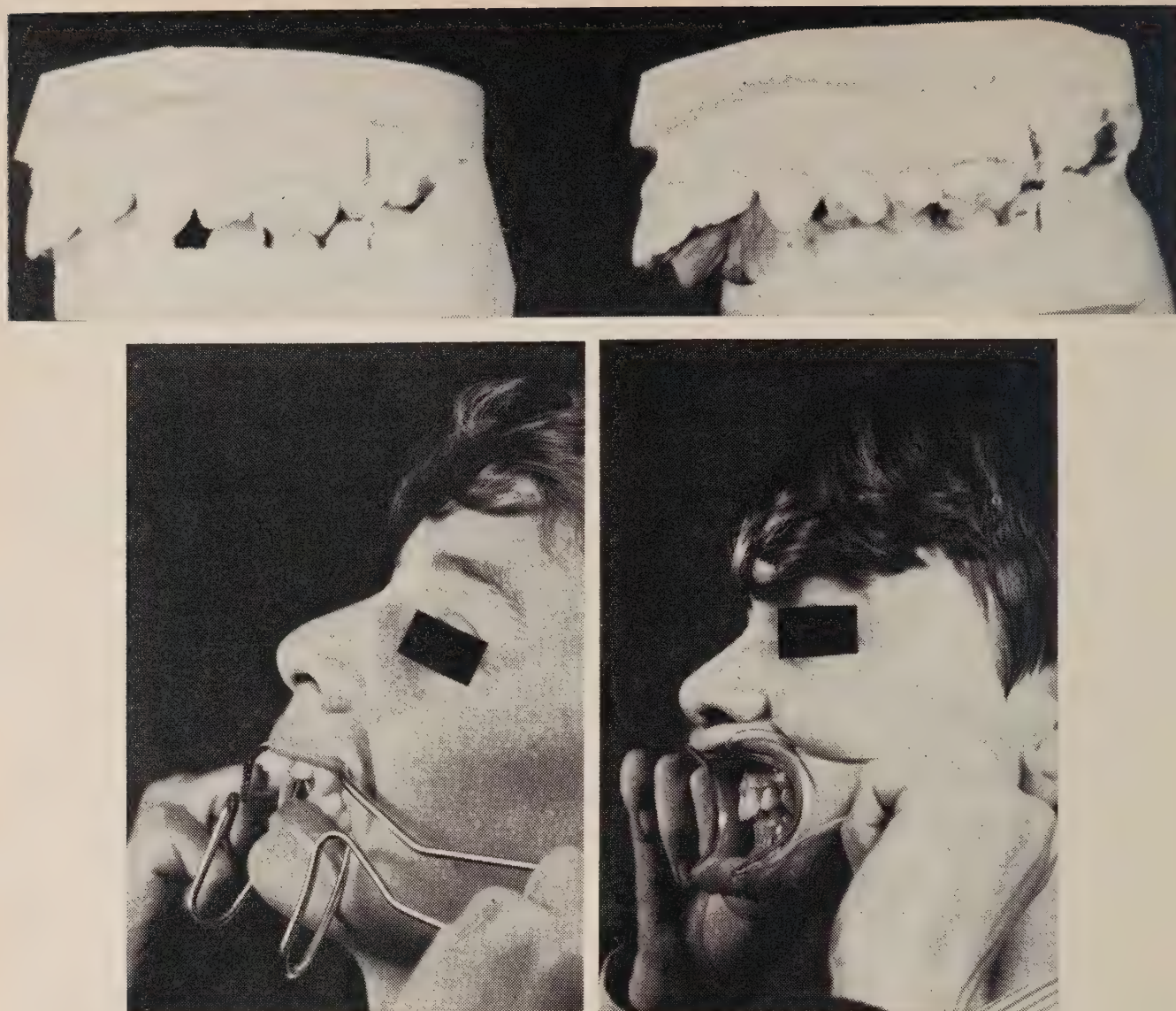


FIGURE 3 Casts and photographs of a patient before and four weeks after surgical reduction of maxillary protrusion.

fragment may be approximated forward and downward.

Fixation. — Cap splints are used in the maxilla and mandible. They immobilize the premaxillary bone fragment in the desired position. No immobilization is required in the mandible. The cap splints are prefabricated in three sections. After the operation, an impression is taken with the splint sections in place. The sections are then soldered and reinserted in the mouth. The splints are left in place for four to five weeks. They permit mastication.

Though we have used many different fixation appliances in the past, we believe that cap splints give greater rigidity and are more comfortable for the patient. We prefer to solder these splints rather than

use conventional locking bars which cause greater discomfort to the patient.

DISCUSSION

It is essential to protect the postoperative vascular supply to the teeth. In our experience, however, the labial mucosa supplies adequate blood to the premaxilla and teeth during healing of the operated fragments. Moreover, the two greater palatine arteries contribute very little to the vascular supply of the palatal mucosa in the region of the anterior teeth. Consequently, this portion of the mucosa is unsatisfactory as a vascular source for the premaxilla.

The submucosal tunnel technique should assure an adequate blood supply.

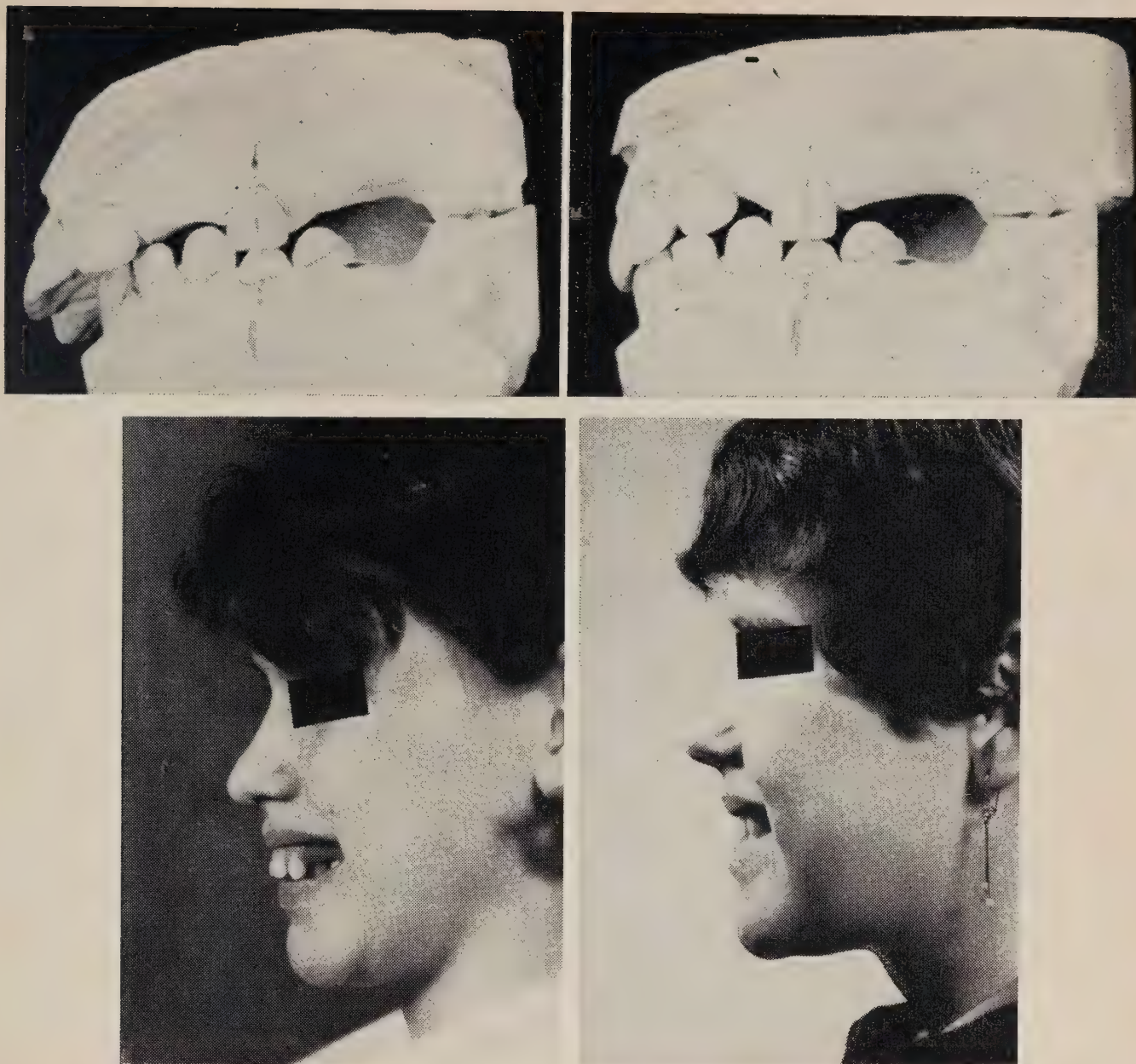


FIGURE 4 Casts and photographs of a patient treated by surgery. Note absence of molars.

It is, however, a hazardous operation. Indeed, the traumatic effect of the accompanying manipulation and traction may quite possibly impair the circulation in the operative site.

It is better to reflect the palatine mucosa and thereby gain a clear visual field. It is likewise preferable to operate more rapidly, cause less laceration and thereby hasten postoperation revascularization. We therefore protect the vascular supply emanating from the buccal mucosa. Our experience so far shows that, to section the premaxilla, one must operate fast and withdraw from the operative site as quickly as possible.

Surgical correction of maxillary protrusion is not a substitute for orthodontic

treatment; both are necessary in most cases. Surgery sometimes achieves results where orthodontic treatment alone is inadequate. Other patients may prefer surgical treatment for socio-economic reasons.

Cephalometric studies are made of each patient to determine the degree of protrusion or retrusion (Figure 5). We do not always follow the values obtained from these measurements because this could impair facial symmetry and harmony. The soft tissues, the nasal prominence, the labial length and the labial fossa also influence the new position of the teeth. We take these additional factors into consideration when planning an operation.

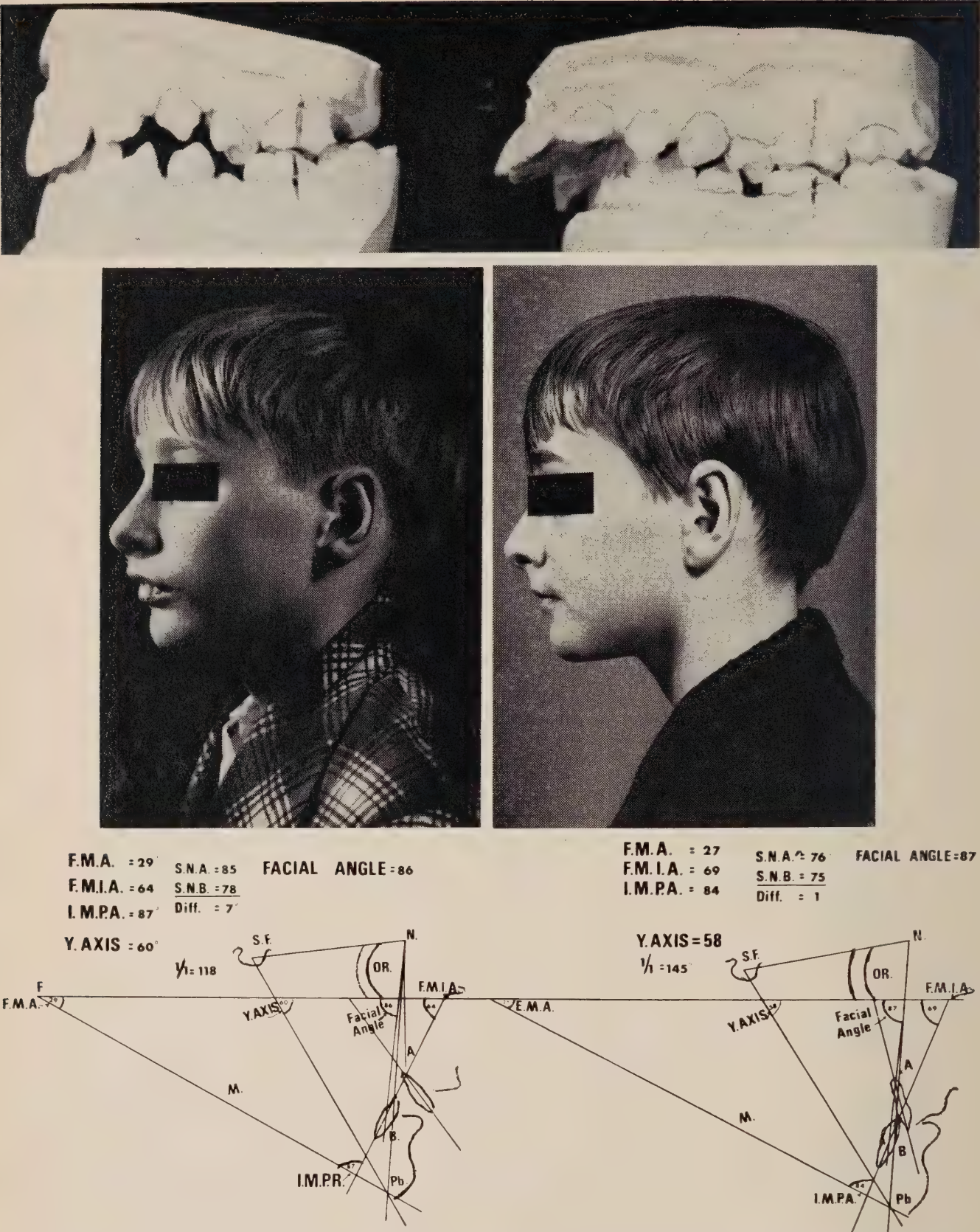


FIGURE 5 Casts, photographs and cephalometric measurements of a patient treated by surgery.

We have operated on patients ranging from 12 to 20 years. Though we have only performed 13 surgical corrections of maxillary protrusion during the past 3½ years, we have also had 15 years' experience with maxillofacial trauma. During this period we treated many cases of pre-

maxillary detachment which usually healed satisfactorily.

Up to now we have not extracted a single anterior tooth or detected a pyogenic granuloma in the maxilla or mandible of any of the 13 patients treated for maxillary protrusion. In some cases the teeth

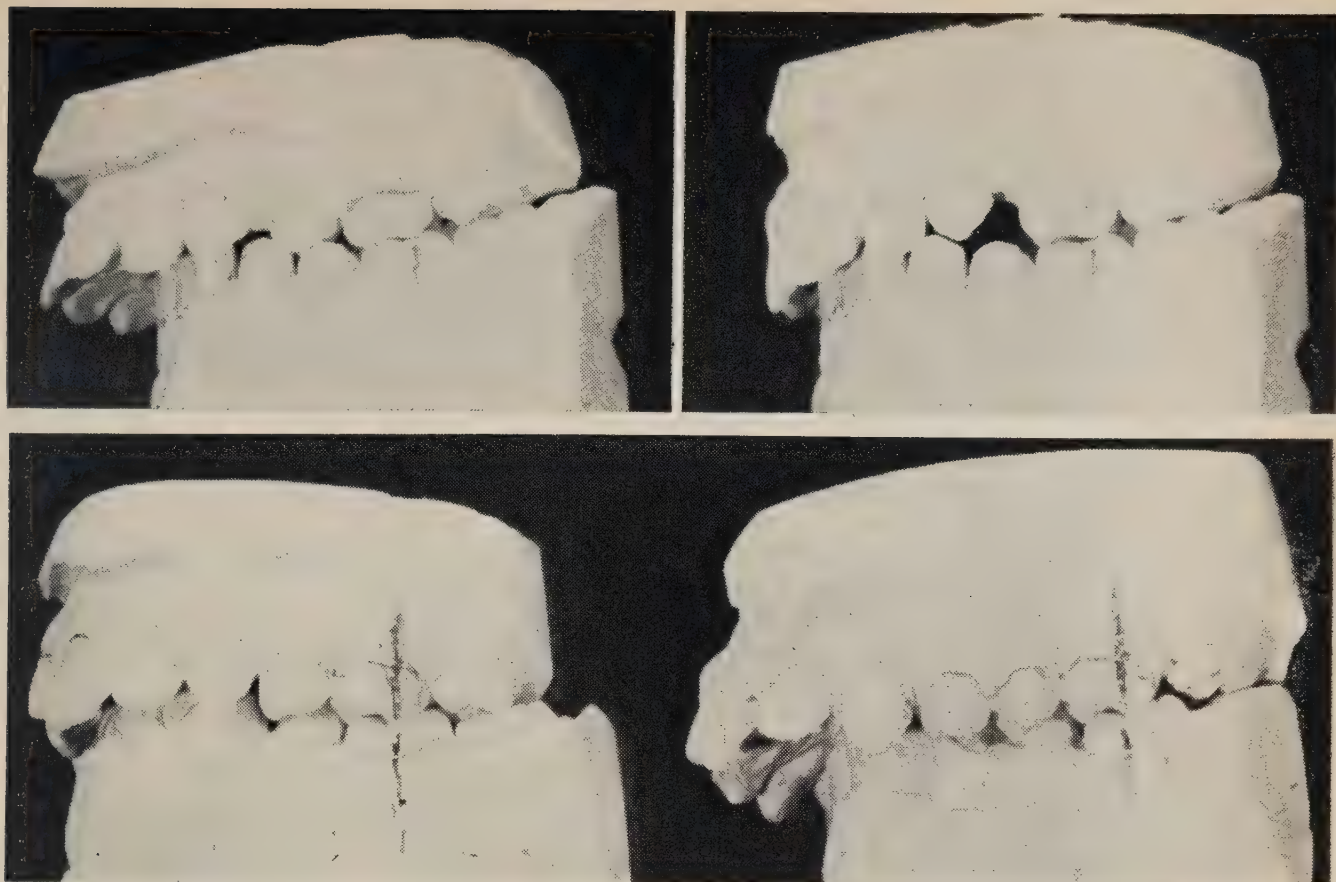


FIGURE 6 Casts of two extreme cases of maxillary protrusion treated by surgery.

admittedly did not respond to stimulation for 10-12 months. This does not, however, necessarily mean that the affected teeth are non-vital; they continue to have an adequate blood supply.

Our experience is, of course, too limited to determine whether other changes may occur in future. During the first 3½ years following the operation, however, we have not observed any protrusion relapse of the anterior teeth. Moreover, all the patients adjusted quickly to the new occlusal relationship even if this was not always perfect.

CONCLUSION

A new surgical technique for the correction of maxillary protrusion and mandibular retrusion has been described. This

operation may give even better results when combined with presurgical orthodontic treatment. Though it is too early to draw definite conclusions, the results to date have been encouraging and the technique may prove to be an asset in correcting these anomalies.

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Postextraction complications in haemophilia:

report of case and discussion

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An 11 year old haemophiliac boy was admitted to hospital for urgently needed surgical and operative dental treatment. Case management was complicated by the patient's hypersensitivity to whole blood, the apparent formation of antibodies which destroyed antihaemophilic factor concentrate, and a physician's apparent lack of appreciation of the importance of dental care. Measures for the control of postoperative bleeding included the administration of whole blood, cryoprecipitate and antihaemophilic factor concentrate; packing of the extraction sockets with oxidized regenerated cellulose soaked in thrombin sodium bicarbonate solution; direct injection of thrombin solution into extraction sockets; and the use of clear acrylic splints. Supportive therapy included the administration of antibiotics to control infections and antihistaminics to counteract sensitivity to whole blood.

Un hémophile de 11 ans fut admis à l'hôpital pour traitement dentaire urgent, chirurgical et opératoire. Le cas était encore compliqué par l'hypersensibilité du patient au sang entier, par la formation apparente d'anticorps qui détruisaient le concentré de facteur anti-hémophile et par le peu de considération que le médecin traitant semblait accorder à l'importance des soins dentaires. Les mesures prises pour arrêter l'hémorragie post-opératoire comprirent: l'administration de sang entier, de cryoprécipité et de concentré de facteur antihémophile; l'insertion dans les alvéoles des dents extraites de cellulose régénérée oxydée imbibée d'une solution de bicarbonate de soude et de thrombine, une injection directe de solution de thrombine dans les alvéoles et l'usage d'attelles en acrylique transparent. La thérapeutique d'appoint comprit l'administration d'antibiotiques pour empêcher l'infection et d'antihistaminiques pour neutraliser la réaction au sang entier.

This article describes the problems which a dentist may encounter when he treats patients with a coagulation defect. Treatment in this case was unnecessarily complicated because one of the attending physicians did not appreciate the significance of adequate dental care.

REVIEW OF LITERATURE

The literature abounds with advice on the management of haemophiliacs requiring tooth extraction. Stapp et al¹ claimed minimal postoperative oozing when they used limited plasma transfusions in con-

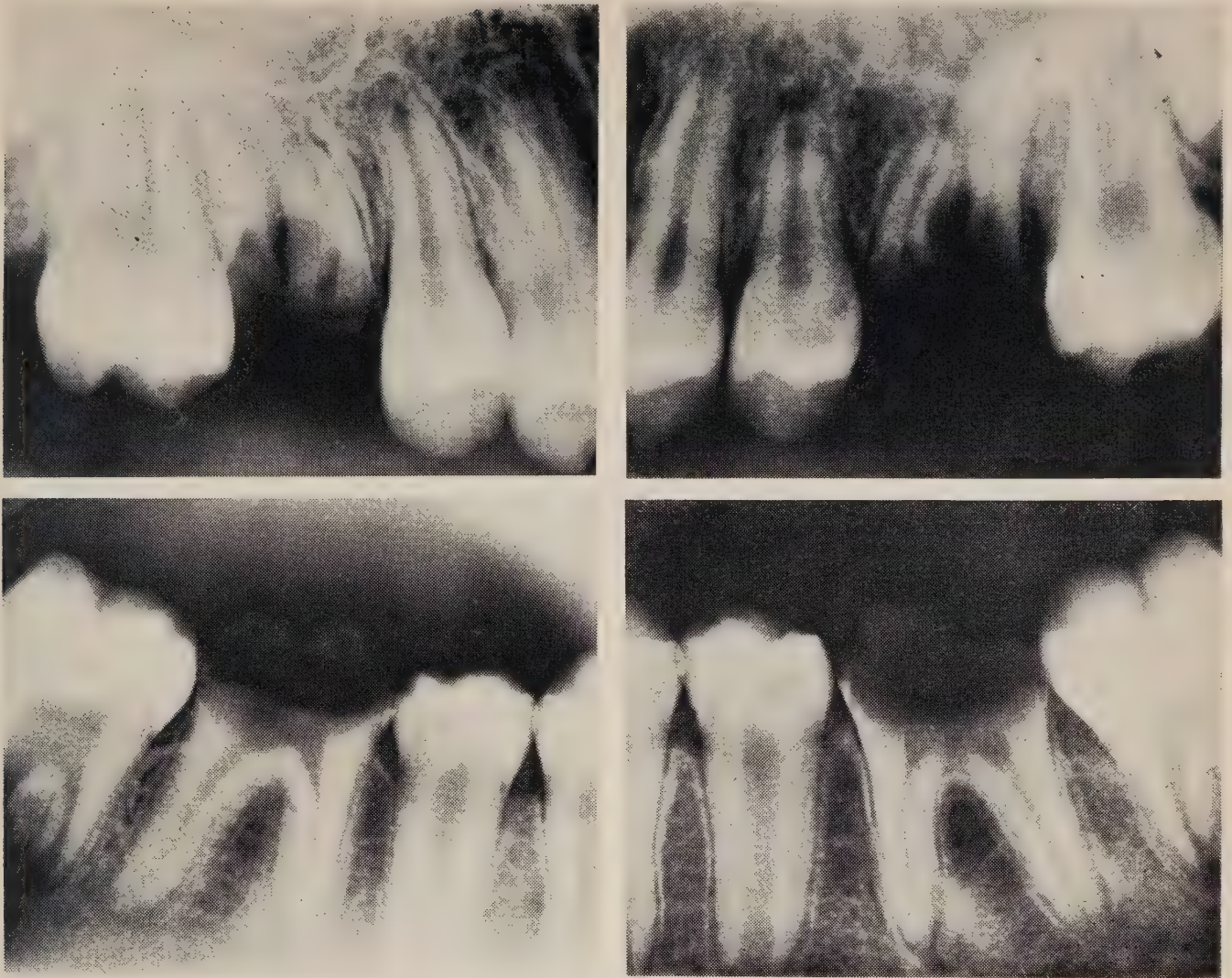


FIGURE 1

junction with sublingual oxalic-matonic acid (Koagamin) and bismuth-iodoform-paraffin gauze dressings sutured firmly in place. Lindsay et al² reported success with a modified local anaesthesia technique, fresh whole blood transfusions (300 ml. during 12 days) and packing the socket with fibrin foam impregnated with thrombin powder. Dennison and Thomson³ stressed the importance of hospitalization and cooperation between the haematologist, dentist, anaesthetist, physician and nurse. They favoured carefully administered endotracheal anaesthesia. Haemorrhage was controlled by the administration of antihæmophilic globulin concentrate and by the use of acrylic splints. Using adequate blood replacement therapy, Björln and Nilsson⁴ were able to control bleeding without complications. Lucas stressed the importance of a careful history, laboratory tests for positive identification of the coagulation de-

fect,^{5,6} psychological preparation of the patient,⁷ careful surgical technique, and the use of specific methods of local haemostasis.⁸ He packed the sockets with oxidized regenerated cellulose soaked in thrombin dissolved in 0.5 per cent sodium bicarbonate solution.^{9,10} Lucas has often controlled postoperative bleeding using only this local therapy and hypnosis.¹¹ Massler and Aquirre¹² described a technique for exfoliating teeth with elastic bands. They claimed that haemorrhage as well as physical, surgical and psychic shock were thereby minimized. Some authors have criticized this technique because it is a long procedure attended by discomfort and pain. Simpson¹³ reported treatment of the deciduous molars of a hæmophiliac by pulpotomy and pulpectomy, thus avoiding surgical risk. These teeth were retained and observed for five years until they were exfoliated. This treatment has been used in more recent

cases with success. Bjorndal¹⁴ recorded a successful pulpectomy in a pulp-involved upper permanent molar of a nine year old haemophiliac. The root canals were obliterated with silver points.

CASE REPORT

The patient, an 11 year old white boy with severe haemophilia A, had "never been allowed near a dentist." Consequently, the four first permanent molars had deteriorated until only infected roots remained (Figure 1). Over a period of several years a physician had treated acute exacerbations of the infection with antibiotics. The child had been frequently admitted to hospital for the control of haemarthrosis and other bleeding problems. These treatments generated a sensitivity toward whole blood. After a thorough clinical and radiographic examination, the parents were informed of the gravity of the surgical problem and the need for hospitalization and complete dental rehabilitation. Consultation with an oral surgeon and a haematologist was also recommended. The patient's physician agreed to admit the boy to hospital for proper assessment and complete dental treatment.

On admission, the patient came to the hospital dental clinic where he received a dental prophylaxis. Impressions of the upper and lower arches were taken and upper and lower clear acrylic splints were made to protect the postextraction sites. On the second day, after psychological preparation, one amalgam restoration was placed without using local anaesthesia. Although the patient responded satisfactorily, it was evident that treatment could not be continued in this way. In the meantime, an oral surgeon and a haematologist were consulted. We agreed that further dental treatment should be carried out under general anaesthesia after careful medical preparation for surgery.

At this point, however, the attending physician began to question the advisability of extracting the infected molars. We therefore suspended preparation of the patient pending further consultation. On the fifth, sixth and seventh days after ad-

mission, the patient received three units of cryoprecipitate,¹⁵ 750 ml. of fresh whole blood and four units of antihæmophilic factor (AHF) concentrate. He went to the operating room on the sixth day. By this time both arms had hæmatomas. Rather than carry out a cut-down to find a vein, the anaesthetist sent the patient back to the ward.

On the tenth day after admission the patient returned to the operating room. We restored nine tooth surfaces, extracted the lower right first permanent molar and packed each root socket with oxidized regenerated cellulose (Surgicel) soaked in thrombin-sodium bicarbonate solution.^{9,10} We also cemented the lower splint to the teeth. The patient progressed fairly well during the next six days, experiencing only slight oozing. The splint came out on the day after surgery and was not recemented. On the eighteenth day after admission bleeding recommenced from the extraction site, and some bleeding began around the undisturbed upper roots. It was noted that no blood, cryoprecipitate or AHF concentrate had been given the preceding day. Transfusions were resumed, and bleeding stopped.

Also on the preceding day (17 days after admission) we removed the remaining three molars under general anaesthesia, packed the sockets as previously described and cemented the upper and lower splints. The splints came out two days later, probably as a result of continuous bleeding and pressure from swelling. Bleeding continued for 11 days despite intensive transfusion therapy with cryoprecipitate, AHF concentrate and whole blood. Periods of oozing alternated with severe hæmorrhage. We removed large clots periodically and repacked the sockets with oxidized regenerated cellulose soaked in thrombin solution. Finally, we injected thrombin solution into the sockets¹⁶ and discontinued exerting pressure on them. The bleeding subsided, and the patient was discharged four days later, 37 days after admission to hospital.

Daily tests performed during hospital confinement revealed a disturbing trend. The partial thromboplastin time (PTT), already elevated on admission (47 sec.; normal 26-34 sec.), rose alarmingly after

each administration of cryoprecipitate or AHF concentrate. The difference in PTT before and after transfusion reached 27 seconds on the twenty-third day. That day the haemoglobin dropped to 4.8 Gm./100 ml. despite the cryoprecipitate, AHF concentrate and blood being given each day. On this date, also, the factor IX level was found to be only 40 per cent of its normal value. During a period of 37 days the patient received 11,100 ml. of whole blood, 160 units of AHF concentrate, 57 units of cryoprecipitate, 750 cc. of packed red cells, 250 mg. ampicillin q.i.d. for 35 days, and 250 ml. erythromycin q.6.h for 14 days. He was also given chlorpheniramine (Chlor-Tripolon) or diphenhydramine (Benadryl) with each transfusion to counteract sensitivity to whole blood manifested by chills, headache, and nausea.

DISCUSSION

Although we have treated several haemophiliacs, none has been so perplexing as this case. Every possible complication was encountered, including a physician's complete disregard of the principles of conservative dental treatment, hypersensitivity to whole blood, and the apparent formation of antibodies which destroyed AHF concentrate. The partial thromboplastin time increased after transfusion of AHF concentrate, but the patient seemed to improve clinically.

This case again illustrates the tragic consequences of a physician's misunderstanding of the dictates of timely dental treatment. Dennison and Thomson³ complained of the same problem in Britain. Too many parents and physicians still try to shield children from the 'hazards' of dentistry; yet the family physician is in an ideal position to counsel parents concerning early dental consultation and treatment.

Disagreement or lack of communication between professionals has added psychological repercussions. This patient knew that his doctors held divergent views about the presence of infection and the need to extract the gravely infected teeth. By the time positive action was

taken the patient and the parents were in a state of extreme anxiety. This condition may have aggravated the subsequent problem of haemostasis.

The development of factor VIII concentrates, though it represents a dramatic advance in the treatment of true haemophilia, does not resolve all the problems that may arise. The severity of factor VIII deficiency varies from patient to patient, necessitating a very careful appraisal of each case. A person may also lack other clotting factors. This patient's factor IX, for example, was only 40 per cent of the normal level. Although no circulating antibody was detected, the patient's partial thromboplastin time increased consistently after each administration of factor VIII concentrate. We cannot explain this strange phenomenon. Moreover, the patient was already sensitized to whole blood before the present crisis, yet whole blood administration was necessary to maintain the haemoglobin and platelets at an acceptable level.

Teeth have been successfully extracted without transfusions in other haemophiliacs. These operations were carefully performed and the sockets were packed with oxidized regenerated cellulose soaked in thrombin-sodium bicarbonate solution. In this patient, however, similar local measures supplemented by massive transfusions met with limited success.

There is no agreement in the literature concerning the placement of sutures over extraction sockets in haemophiliacs. If sutures are placed and bleeding ensues, they may cause tension and tear the tissue, resulting in more bleeding sites. In one patient whose sockets were sutured three or four times before referral, the sutures were subsequently buried. Bleeding occurred through the suture holes, and the sutures were extremely hard to find and remove.

The use of a clear acrylic splint is accepted as good practice. It is advisable to prepare one routinely in advance of surgery. It must be carefully constructed on articulated models so that the occlusion is well stabilized when the splint is in place. In the case under discussion neither splint remained in place. One might argue that it is better to let the patient bleed through the tooth socket than bleed

into deep tissues with all the attendant hazards. After removing this patient's splints, damp sponges were used to produce pressure and protect the clots, but these were eventually discarded because the sponges tended to disturb the clots.

When bleeding persists, it is imperative to remove accumulated clots, find the source of bleeding, and place new packs. Despite several efforts in this direction, we could not arrest this patient's bleeding. Finally, thrombin solution was injected directly into the blood clots in each socket. The patient experienced severe pain from these injections, probably from pressure, but the haemorrhage began to subside.

The feeding of a haemophiliac after dental surgery requires careful management. Movements of the tongue and cheeks must be avoided. Our patient received liquids through a tube placed in the oropharynx, the food being injected through the tube from a large syringe. Daily vitamin C and vitamin K supplements were started 19 days after admission to hospital when the haemoglobin reached its lowest point and the patient had been accepting little nourishment for several days.

SUMMARY

A case of true haemophilia with some factor IX deficiency and hypersensitivity to whole blood is described. The problems of local haemostasis and systemic treatment are discussed, and the importance of complete understanding and cooperation amongst the attending doctors is stressed. Despite recent progress, much more must be done to improve communication between the various members of

the team who concern themselves with the health and survival of haemophiliacs.

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FIGURE 1 Non-haemorrhagic pulp exposure. Dental pulp fluid is present in the deepest part of the cavity.



FIGURE 2 Haemorrhagic pulp exposure. Streaks of blood can be seen in the dental pulp fluid.

The role of dental pulp fluid in healing small surgical pulp exposures

M. N. Attalla,* BDS, MSD, Calgary, Alta.

To test the role of dental pulp fluid, minute pulp exposures were made in 20 dogs' teeth. The exposure sites in 11 teeth were covered by mixing calcium hydroxide with the dental pulp fluid that escaped into the cavities. Calcium hydroxide and distilled water were used to cap the pulps of the other nine teeth. After eight weeks, pulps covered with the mixture of calcium hydroxide and dental pulp fluid had a thicker layer of reparative dentine than pulps covered with the mixture of calcium hydroxide and distilled water. There was no appreciable difference between the response of non-haemorrhagic exposures and exposures with minute quantities of blood.

Pour vérifier le rôle du serum de la pulpe dentaire, on a fait de petites entailles dans la pulpe des dents de 20 chiens. On a enduit 11 des plaies avec un mélange d'hydroxyde de calcium et de serum de la pulpe dentaire qui s'était échappé dans les cavités. On a enduit les neuf autres d'hydroxyde de calcium mélangé à de l'eau distillée. Après huit semaines, la pulpe enduite du mélange d'hydroxyde de calcium et de serum était recouverte d'une couche de dentine réparatrice plus épaisse que celle traitée à l'hydroxyde de calcium et à l'eau distillée. On n'a pas remarqué de différence appréciable entre la réaction des plaies non hémorragiques et celles des plaies qui saignaient légèrement.

Dentine contains tubules surrounded by a calcified matrix. The tubules are occupied by odontoblast processes surrounded by dental lymph which circulates to reach the enamel.^{1,2} Studies conducted with isotopes have confirmed the presence of circulation inside the hard dental structures.^{3,4}

Several investigators⁵⁻⁷ have described the clear 'dental pulp fluid' obtained from non-haemorrhagic pulp exposures in human and animal teeth. This fluid appears under positive pressure and responds to clinical variables such as temperature change, drilling and extraction.⁶ It is directly related to blood plasma. Intravenously injected Evans Blue, tetracycline,⁷ sulphanilamide and penicillin⁸ have been detected in the dental pulp fluid. Fluctuations in blood glucose concentration likewise induce corresponding fluctuations in the glucose concentration of dental pulp fluid.⁹

Despite our knowledge of the physical and chemical properties of the dental pulp fluid, little is known of its significance for the vitality and repair of the tooth.¹⁰ This paper describes the biological role of dental pulp fluid in tooth repair.

MATERIAL AND METHODS

Twenty teeth in seven young healthy male dogs were used in this study. Nine of these teeth were used as a control.

Class V cavities were started on the labio-gingival third. A No. 557 carbide fissure bur was used in an air turbine handpiece with air stream coolant. The outline forms were completed and enamel removed. A binocular operating microscope (Wild of Canada Ltd., Ottawa) was then focused over the cavities. Under careful microscopic observation the cavities were deepened with a No. 4 round steel bur in a straight handpiece operated at low speed. The bur was applied intermittently and with very light pressure to minimize trauma to the pulp tissue. The cavities were deepened until the colour of the floors turned from ivory to light red, becoming darker at the centre. This resulted from transmission of the pulp's colour

through the very thin dentine. The cavity floors were then flexible and could be fractured by using a blunt hand instrument with very light pressure. Upon fracture a relatively large amount of clear fluid oozed under pressure from the site of exposure. This was assumed to be the 'dental pulp fluid' reported by Haldi et al.⁵ In some cavities a thin streak of blood was observed in the clear fluid; these cases were classified as haemorrhagic pulp exposures (Figures 1 and 2).

In 11 teeth pure calcium hydroxide powder (Fisher Scientific Company, Fair Lawn, NJ) was mixed with pulp fluid in the cavity. In nine teeth the fluid was dried with a sterile cotton pellet. The exposure site was then covered with a mix of pure calcium hydroxide and distilled water. A layer of zinc oxide and eugenol was placed over the pulp capping material in each cavity. The cavities were sealed with amalgam restorations.

The dogs were sacrificed at the end of eight weeks. The teeth were extracted and serial histological sections were stained with haematoxylin and eosin.

RESULTS

The histological findings from the study are summarized in Tables 1 and 2. Exposures capped with a mixture of calcium hydroxide and dental pulp fluid resulted in an average of 139μ reparative dentine thickness at the end of eight weeks. Pulp caps with calcium hydroxide and distilled water (pulp fluid was removed) gave an average of 64μ reparative dentine thickness at the end of the same period. The *t* test difference between the two averages was 75 and therefore highly significant ($p < 0.001$). The dental pulp fluid was responsible for a 117 per cent average increase in reparative dentine thickness.

Normal healthy pulp tissue was observed in all teeth treated with calcium hydroxide mixed with dental pulp fluid (Figure 3). Teeth from which dental pulp fluid was removed gave a similar result except one case in which there was an abscess (Figure 4).

No significant differences could be de-

TABLE 1 Summary of histological results in 11 pulp specimens. Pulps exposed eight weeks earlier were covered with a mixture of dental pulp fluid and calcium hydroxide.

Slide	Thickness of reparative dentine μ	Condition of the pulp	Type of exposure
1-154	170	normal	non-haemorrhagic
2-173	205	normal	haemorrhagic
3-152	105	normal	haemorrhagic
4-170	180	normal	haemorrhagic
5-174	102	normal	non-haemorrhagic
6-175	185	normal	non-haemorrhagic
7-180	120	normal	non-haemorrhagic
8-250	124	normal	non-haemorrhagic
9-102	82	normal	non-haemorrhagic
10-171	98	normal	non-haemorrhagic
11-172	155	normal	haemorrhagic

tected between teeth with non-haemorrhagic pulp exposures and those with minute haemorrhagic exposures.

DISCUSSION

Clear fluid collects on the cavity floor when the dental pulp is superficially exposed to the odontoblast cell layer. While the centre of the pulp is highly vascular, the blood vessels approach but seldom enter the odontoblast cell layer. This explains the absence of blood following superficial pulp exposures.^{11,12} Such exposures may easily escape detection by the

dentist. I therefore concur with Hassan et al⁷ that every deep cavity should be protected with a non-irritating pulp capping material.

Dentine is formed in two stages. First, there is the elaboration of an uncalcified organic matrix and secondly, the mineralization of that matrix.¹² Sciaky and Pisanti¹³ have shown that the calcium from the calcium hydroxide dressing does not enter into the formation of reparative dentine in pulp-exposed dog teeth. They further indicate that calcium in the newly formed secondary dentine comes from the blood.¹⁴ Dental pulp fluid contains inorganic ions as well as organic

TABLE 2 Summary of histological findings in nine pulp specimens. Pulps were exposed eight weeks earlier, dental pulp fluid was removed and the exposure sites were covered with a mixture of calcium hydroxide and distilled water.

Slide	Thickness of reparative dentine μ	Pulp tissue	Type of exposure
1-253	90	inflamed	non-haemorrhagic
2-251	18	normal	non-haemorrhagic
3-202	56	normal	haemorrhagic
4-153	57	normal	haemorrhagic
5-190	55	normal	haemorrhagic
6-151	60	normal	non-haemorrhagic
7-301	120	normal	non-haemorrhagic
8-155	62	normal	non-haemorrhagic
9-176	60	normal	non-haemorrhagic

material.^{5,10} It is likely that certain constituents of the blood pass through the capillary walls into the intercellular spaces and collect at the exposure site. The pulp fluid, when mixed with calcium hydroxide at the exposure site, may then provide the organic material which aids matrix formation and the inorganic ions for mineralization of the matrix.

The results of this study favour the capping of all minute pulp exposures. Thicker reparative dentine results if the exposure is covered by mixing a suitable capping material like calcium hydroxide with the pulp fluid or blood in the cavity.

SUMMARY

Superficial pulp exposures were made in 20 dogs' teeth. A clear fluid escaped under positive pressure from 13 non-haemorrhagic exposures. The study showed that superficial exposures can occur without apparent bleeding into the cavity. Pulp capped with a mixture of calcium hydroxide and dental pulp fluid produced thicker reparative dentine and better protection for the pulp. The results support the recommendation for the treatment of every deep cavity with a non-irritating pulp capping material.



FIGURE 3 Photomicrograph of a tooth treated with calcium hydroxide mixed with dental pulp fluid. Eight weeks later there is reparative dentine (A) and the pulp tissue appears normal. H.E. x400.



FIGURE 4 Photomicrograph of a tooth treated with calcium hydroxide and distilled water. Eight weeks later there is reparative dentine (A) and an abscess in the centre of the pulp (B). H.E. x400.

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in appreciation • remerciements

Listed below are the names of the individuals who freely gave of their time to review manuscripts and books for the Journal during 1968. On its own behalf and on that of its authors and readers, the Journal expresses sincere gratitude to these reviewers whose advice was so generously provided.

Nous mentionnons ci-dessous, la liste des personnes qui ont gracieusement consenti à reviser des manuscrits et à analyser des livres pour le Journal, au cours de l'année 1968. Au nom de ses auteurs, de ses lecteurs et en son propre nom, le Journal désire leur exprimer sa reconnaissance et les remercier pour leurs généreux conseils.

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La Fédération dentaire internationale et l'Organisation mondiale de la santé

The FDI and the World Health Organization

Dentistry is one of the health professions that most successfully developed a strong international body at an early date. Though dentists are rugged individualists, their leaders foresaw early in this century that the challenges facing the profession could only be met by strong national associations united in one single worldwide organization. With this spirit the Fédération Dentaire Internationale was born.

Governments developed their first large international organization immediately after the first World War. They called it the League of Nations. Although their first experience was unsuccessful, they tried again after the second World War with another international organization which so far has proved a real asset for all mankind. This second organization — the United Nations — is like an umbrella which encompasses a large number of specialized agencies. The one that particularly concerns us is the World Health Organization which celebrates its twentieth anniversary this year. WHO, the

Dans le domaine de la santé, la dentisterie est l'une des rares professions qui ait réussi à créer, tôt dans son histoire, un organisme international fort. Bien que les dentistes soient des individualistes farouches, les têtes de file ont prévu, dès le début du siècle, le défi auquel ferait face la profession, et ils se sont rendus compte que la seule façon de le relever, c'était d'organiser des associations nationales fortes, unies en une seule organisation mondiale. C'est cet esprit qui a présidé à la naissance de la Fédération dentaire internationale.

Les gouvernements ont mis sur pied leur première organisation internationale importante après la fin de la première guerre mondiale. Ils l'ont appelé la Ligue des Nations. Leur premier essai a été un échec, mais ils ne se sont pas découragés; après la deuxième guerre mondiale, ils ont créé une autre organisation internationale et jusqu'ici, toute l'humanité en bénéficie. Cette deuxième organisation — les Nations Unies — est comme une ombrelle qui abrite un grand nombre d'agences spécialisées. Celle qui nous touche le plus directement est l'Organisation mondiale de la santé qui célèbre, cette année, son vingtième anniversaire. L'OMS, qui est la section santé des Nations Unies, a pour but d'aider tous les peuples à réaliser le plus haut niveau de santé possible. Il

health arm of the United Nations, has as its purpose the attainment of the highest possible level of health by all peoples. It is no wonder that the FDI exhibited an immediate interest in an international governmental agency claiming such a broad objective. The Federation's interest was soon recognized by WHO which included FDI among the non-governmental agencies that are in official relation with WHO. Other international dental specialist groups have been denied this privilege because of WHO's desire to deal with a single, strong, international representative of organized dentistry.

FDI has been zealous as a spokesman for dentistry. The Federation is recognized at WHO as one of the non-governmental agencies which most effectively watches and supports WHO activities in its particular field of interest.

Back in 1954, the Secretary General and other FDI leaders met in Geneva to advise the Director General of WHO on the main lines to be followed in the development of a dental program. This led to the appointment of a dental officer in 1955 and the creation of a dental health unit in 1959. The latter now has three internationally recruited staff members. Two of the six regional offices of WHO, at Washington and Copenhagen, now have dental advisers. The Federation hopes that the day will soon come when the other four, at Alexandria, Brazzaville, New Delhi and Manila, will also have dentists on their staff.

The FDI seldom fails in its duty of representing dentistry at WHO. FDI leaders and experts are not always available in places where WHO meetings are held; therefore their travel expenses have to be covered from FDI funds.

As a non-governmental agency, the Federation is invited to be represented at general administrative and policy-making meetings and at scientific meetings in the dental field. Among the general meetings, where WHO policies are discussed and approved by government representatives, are the annual meeting of executive committees in each of the six regions of WHO, the bi-annual meetings of the WHO Executive Board and the annual meetings of the World Health Assembly.

On the scientific side, the Federation

n'est donc pas étonnant que la FDI s'intéresse directement à une agence gouvernementale internationale dont les buts sont généraux. L'OMS a reconnu très rapidement l'intérêt que lui porte la Fédération, en incluant la FDI dans la liste des agences avec lesquelles elle entretient des relations officielles. D'autres groupes dentaires internationaux de spécialistes se sont vu refuser ce privilège parce que l'OMS désire traiter avec un seul représentant international de la dentisterie organisée.

La FDI a été un porte-parole zélé de la dentisterie. L'OMS considère la Fédération comme l'une des agences non gouvernementales qui surveille le plus efficacement ses activités et les appuie, dans son domaine d'intérêt particulier.

En 1954, le secrétaire général et les autres dirigeants de la FDI se sont réunis à Genève pour conseiller le directeur général de l'OMS sur les grandes lignes à suivre pour la mise sur pied de programmes dentaires. Ceci a eu pour conséquence, la nomination d'un responsable pour la dentisterie, en 1955, et la création d'un secteur de la santé dentaire, en 1959. Ce dernier compte maintenant trois membres permanents recrutés à l'échelle internationale. Deux des six responsables régionaux de l'OMS, à Washington et à Copenhague, ont maintenant des conseillers en dentisterie. La Fédération espère qu'un jour, les quatre autres, à Alexandrie, Brazzaville, à la Nouvelle-Delhi et à Manille, auront aussi des dentistes parmi leur personnel.

Il est rare que la FDI ne représente pas bien la dentisterie au sein de l'OMS. Il n'y a pas toujours des dirigeants de la FDI et des experts dans les villes où l'OMS se réunit et c'est pourquoi les fonds de la FDI couvrent leurs frais de voyage.

En tant qu'agence non gouvernementale, la Fédération est invitée à envoyer des représentants aux réunions administratives, scientifiques et à celles qui déterminent les lignes de conduite dans le domaine dentaire. Citons, parmi les réunions générales au cours desquelles les représentants des gouvernements approuvent et discutent les principes qui régissent l'OMS: les réunions annuelles des comités exécutifs dans les six régions de l'OMS, les réunions bi-annuelles du con-

has been represented at six dental expert committee meetings and in various dental seminars and study groups convened by WHO. The most recent one was a seminar on the training and utilization of dental auxiliary personnel held in New Delhi at the end of last year.

FDI representatives are given the floor on request at WHO general administrative meetings and take an active part in the discussions at scientific meetings. The Federation reciprocates this courtesy; WHO is invited to FDI annual sessions where it is invariably represented by its Chief Dental Officer (currently Vladimir Rudko of the Soviet Union). He attends the FDI assembly and is always welcome at commission meetings.

Collaboration between the FDI and WHO is a two-way street. In the past WHO has carried out projects as a conse-



R. M. Grainger

quence of requests made by the FDI. On other occasions WHO has asked for FDI assistance informally, either in the form of advice, opinions or suggestions of names of experts and consultants. WHO has an expert advisory panel for dental health containing over 70 names. Included is that of Canada's R. M. Grainger who has contributed to WHO specifications for the design and analysis of clinical trials and to the development of an international system of epidemiology. Other panel members also participate in the work of FDI commissions. Both organizations share this common pool of scientific and technical experts, and both subscribe to the common ideal of achieving better health for human beings. This mutual interest fosters the harmonious working relationship which has been strengthened with the passing years.

seil exécutif de l'OMS et les réunions annuelles de l'Assemblée mondiale de la santé.

Pour les questions scientifiques, la Fédération a été représentée à six réunions de comités d'experts qui se sont tenues à Genève, ainsi qu'à différents séminaires dentaires et groupes d'études réunis par l'OMS. Le plus récent était un séminaire sur la formation et l'utilisation du personnel dentaire auxiliaire qui a eu lieu à la Nouvelle-Delhi, à la fin de l'année dernière.

Les représentants de la FDI, peuvent prendre la parole aux réunions générales de l'OMS concernant les questions d'administration et ils participent activement aux débats des réunions scientifiques. La Fédération retourne la politesse; l'OMS est invitée aux séances annuelles de la FDI où elle est toujours représentée par le responsable de la section dentaire (qui est actuellement le Dr Vladimir Rudko de l'Union Soviétique). Il assiste à l'assemblée annuelle de la FDI et il est toujours le bienvenu aux réunions de la Commission.

La collaboration entre la FDI et l'OMS est mutuelle. Par le passé, l'OMS a mené à bien différents projets entrepris sur la demande de la FDI. A d'autres occasions, l'OMS a demandé officieusement l'aide de la FDI pour obtenir des opinions ou des avis, et des suggestions de noms d'experts ou de conseils. L'OMS a un dossier qui contient plus de 70 noms d'experts sur la santé dentaire. Y figure, entre autre, celui du Dr R. M. Grainger du Canada, qui a aidé à établir les normes de l'OMS, en ce qui concerne la conception et l'analyse des essais en dentisterie, et à mettre au point un système international d'épidémiologie. D'autres membres qualifiés ont aussi participé au travail des commissions de la FDI. Les deux organisations consultent les mêmes experts dans les domaines scientifique et technique et souscrivent, l'une et l'autre, à un idéal commun, l'amélioration de la santé de l'humanité. Cet intérêt commun contribue à leurs relations harmonieuses, que les dernières années n'ont fait que renforcer.

Le défi auquel fera face la dentisterie, dans les années à venir, est presque impossible à relever. A cause de l'explosion

The challenges that dentistry must face in the years ahead are almost overwhelming. The population explosion, improved standards of living and a revolution in the aspirations of great masses of people are some of the factors which could exhaust the capacity of the dental profession to render the high quality care desired by all its members. FDI and WHO — a non-governmental and a governmental organization — work closely and effectively together to avert this eventuality and find the right economical and ethical solution to this problem

de la population, de l'amélioration des niveaux de vie, de la révolution dans les aspirations des masses humaines et d'autres facteurs, la profession dentaire pourrait se trouver dans l'impossibilité de rendre, à tous, des services de haute qualité. La FDI et l'OMS—une organisation non gouvernementale — et une organisation gouvernementale — collaborent étroitement et efficacement pour parer à cette éventualité et pour trouver la solution économique et déontologique qui convient à ce problème.

Mario M. Chaves

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Listed below are the names of individuals on whose behalf Living Memorial donations were received by the Canadian Fund for Dental Education during the year November 1967 to October 1968.

Voici la liste des personnes décédées en mémoire desquelles leurs parents et amis ont envoyé une donation au Fonds canadien pour l'enseignement dentaire, depuis novembre 1967 à octobre 1968.

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Dr. W. G. Yoerger

Mr. S. Zivot

Federal income tax returns by dentists

The Department of National Revenue has issued the following instructions to assist dentists in the preparation of their annual income tax returns.

INCOME

There should be maintained by every member of the dental profession an accurate record of income received from his profession (fees) and from other sources (investments, real estate rentals, etc.). The record should be clear and capable of being rapidly checked against the return filed. Records should be maintained in books kept for the purpose which should be retained until written permission for their disposal is obtained from the Minister of National Revenue.

EXPENSES

Under the heading of expenses the following accounts should be maintained and records kept available for checking purposes in support of charges made:

(a) Dental and like supplies.

(b) Office help, nurse, bookkeeper, laundry and malpractice insurance premiums:

Amounts of salaries and wages paid should be reported on Form T4-T4A, ob-

tainable from your District Income Tax Office. (The Income Tax Act does not allow as a deduction a salary paid by a husband to a wife or vice versa. Such amount, if paid, is to be added back to income of the payer.)

(c) Telephone expenses incurred in connection with professional practice.

(d) Assistant's fees:

The names and addresses of the assistants to whom fees are paid, and amounts paid, should be furnished on or before the last day of February in each year on Form T4-T4A. (Do not confuse with individual return of income, Form T1, to be filed on or before April 30 in each year.)

(e) Rentals paid:

The name and address of the owner (preferably) or agent of the rented premises should be furnished. [See (g).] Non-resident tax must be withheld at source from rent paid to non-resident owners of rented premises.

(f) Postage and stationery.

(g) Proportional expenses of dentists practising from their residences:

1. Owned by the dentist: Where a dentist practises from a house he owns and as well resides in, a proportionate allowance of house expenses will be given for the laboratory, office and waiting room space, on the basis that this space bears to the total space of the residence. The charges cover taxes, light, heat, insurance, repairs, and interest on mortgage. (Name and address

of mortgagee to be stated.) Note: For depreciation see item 2 (m).

2. Rented by the dentist: The rent will be apportioned if paid by the dentist; the owner of the premises takes care of all other expenses mentioned in (1) above.

(h) Sundry expenses (not otherwise classified):

The expenses charged to this account should be capable of analysis and supported by records.

Claims for charitable donations will be allowed up to 10 per cent of net income from all sources upon submission of receipts to your District Income Tax Office. Charitable donations made through professional practice should be excluded from professional expenses and claimed as a deduction from income generally, along with any donations made otherwise.

The annual dues paid to governing bodies under which authority to practise is issued and membership association fees, to be recorded on the return, will be admitted as a charge.

For 1965 and subsequent years, tuition fees paid to an educational institution in Canada for a postgraduate course are an allowable deduction, but no deduction may be made in respect of travelling or living expenses incurred in connection with the taking of such a course.

(i) Interest paid on borrowed money may be charged against professional income if the borrowing was for professional purposes. If the money was borrowed to acquire investments, the interest is chargeable against the investment income. If the loan was for personal purposes no deduction from income will be allowed for the interest paid thereon.

(j) Business tax will be allowed as an expense but income taxes will not be allowed.

(k) Automobile expenses:

Taxi fares and automobile expenses incurred in earning the income from the dental practice will be allowed when the dentist must visit the patients at their homes. The cost of transportation between the dentist's home and his office, however, is not an allowable deduction from income. (The manner of calculating claims for automobile expenses is described in Information Bulletin No. 28

issued by the Taxation Division of the Department of National Revenue and reprinted in part on pages 209-210 of the March 1965 issue of the Journal.)

(l) Social club dues are allowable as deductions from income only when, and to the extent that, they are paid for business purposes, and any dentist claiming them may be required to prove, to the satisfaction of the taxation authorities that the amount claimed was expended wholly and directly for the purpose of increasing his business income. 'Social club dues' means annual or monthly membership dues or fees; it does not include an initiation or entrance fee or the cost of a share of a club's capital stock, nor does it include charges for food and drink, living accommodation, fees for the introduction of guests and the like.

(m) Capital Cost Allowance (Depreciation):

The method of computing capital cost allowance for tax purposes is the same as that used last year. However, due to changes in the Income Tax Regulations, dentists (and other taxpayers) will be allowed to claim capital cost allowances on one-half, only, of the cost of assets in classes 3 (brick building — office or residence used both as dwelling and office), 6 (frame building — office or residence used both as dwelling and office), and 8 (dental equipment including instruments each costing \$100 or more; office furniture and fixtures) which were acquired after March 29, 1966 and before April, 1967.

For further information on the subject you may refer to the Regulations or you may consult your District Income Tax Office.

CONVENTION EXPENSES

Convention expenses are allowable to an individual practising a profession, but the allowance is restricted to the expense of attending no more than two conventions in a taxation year. The taxpayer's attendance at the convention must have been for professional reasons. The expenses to be allowed must be reasonable and the taxpayer should show:

1. The dates on or between which the

convention was held, and the location thereof;

2. The number of days he was present at the convention, supported by a certificate of attendance from the sponsoring organization; and

3. The expenses incurred, segregating (a) transportation expenses, (b) meals, and (c) hotel expenses, for which at least vouchers should be obtained and kept available for inspection.

All expenses of a personal nature including those attributable to the fact that the taxpayer's wife (or husband) accompanied him to the convention must be excluded from the foregoing.

No expenses for attending a convention are allowable as a deduction from salary income, since such a deduction is prohibited by Section 5 of the Act.

The Department of National Revenue has expressed the view that, ordinarily, the business purpose of a convention sponsored by a Canadian business or professional organization does not require that it be held outside Canada, where the organization is national in character, or outside a particular province, municipality or other area in Canada where the activities of the organization are limited in scope to such an area. Consequently, expenses incurred in attending a convention sponsored by a Canadian organization that is held outside those geographical limits will normally be viewed as not deductible in computing income. For this purpose, a convention held during an ocean cruise will be viewed as being held outside Canada.

REGISTERED RETIREMENT SAVINGS PLANS

The amount that is deductible in respect of contributions to a retirement savings plan is limited:

(a) In the case of an employee receiving a salary who is covered by a registered pension fund or plan (whether or not he contributes to the pension fund) to \$1,500 or 20 per cent of his earned income, minus the amount, if any, he is allowed to deduct from income for his contribution to the pension fund.

(b) In other cases, to the lesser of \$2,500 or 20 per cent of his earned in-

come. 'Earned income' usually consists of income received as salary (before any pension deductions) or income from carrying on a business or profession, plus net rental income.

The amounts deductible are those paid in 1968 and within 60 days after the end of the year. A payment made in January or February 1968 cannot be claimed in 1968 if it could have been deducted in 1967.

Individuals inquiring whether a proposed or existing plan is acceptable should usually obtain that information from the corporation offering the plan as it will normally be the corporation's responsibility to explain the plan and get it registered.

Dentists who have applied for membership in the Canadian Dental Association Retirement Savings Plan prior to February 15, 1969 may be assured that their names are registered as participants in a registered retirement savings plan and that their contributions are deductible for the taxation year 1968. The closing date for applications and contributions applicable to 1968 is February 15, 1969.

A personal statement of account and a receipt showing the amount of contributions will be mailed in March 1969 to each participant to support claims made for deductions in 1968 income tax returns.

Applications for membership in CDARSP received after February 15, 1969 will entitle participants to tax deferment for 1969.

PAYMENT OF TAX

Individuals whose income is more than 25 per cent derived from sources other than salary or wages are required to pay the tax for each year by quarterly instalments during such year on the following dates, March 31, June 30, September 30 and December 31.

DENTISTS UNDER SALARY CONTRACT

The Income Tax Act provides for the deduction of certain expenses from salary income.

The allowable expenses include traveling expenses, annual professional membership dues, office rent, salary to an assistant or substitute and supplies consumed directly in the performance of the duties of employment.

Certain conditions are attached to the allowance of the expenses. Without trying to recite the exact provisions of the law the main points are:

(a) That the expenses must have been incurred in the performance of the duties of the office for employment.

(b) That the employee is required under the contract of employment to pay the expenses.

(c) To claim travelling expenses the employee must be ordinarily required to carry on the duties of his employment away from his employer's place of business. Travelling between the dentist's home and his office is not included.

INCOME FROM A PARTNERSHIP

Additional expenses incurred by a partner, but not charged to the partnership, may be claimed as a deduction from the partner's share of income. However, the partner must be in a position to substantiate these expenses, to show why they were not charged to the partnership and that they were necessarily laid out to earn partnership income.

PROVINCIAL TAXES ON INDIVIDUALS

Each of the 10 provinces imposes its own tax on the income earned by an individual in that province. With the exception of the province of Quebec, no separate provincial income tax return need be filed by an individual whose income is subject to provincial tax.

Déclaration fédérale d'impôt sur le revenu

Le Ministère du Revenu national a révisé les instructions suivantes, qui ont pour but d'aider les dentistes à préparer leur déclaration annuelle, pour l'imposition sur le revenu.

LE REVENU

Chaque dentiste doit tenir un compte exact des revenus qu'il retire de sa profession (honoraires) et d'autres sources (placements, loyers de biens immobiliers, etc.). Les comptes doivent être clairs et susceptibles d'être comparés rapidement à la déclaration remise. Les comptes doivent être tenus dans des livres à cet effet, lesquels doivent être conservés tant que le dentiste ne reçoit pas la permission écrite de s'en défaire du ministre du Revenu national.

LES FRAIS

Les postes suivants devraient figurer sous la rubrique des frais, et on doit conserver aux fins de vérification les documents à l'appui des dépenses qui y sont portées:

(a) Fournitures dentaires et assimilées.

(b) Préposé à l'entretien, infirmière, comptable, blanchisserie et assurance contre la négligence professionnelle:

Le montant des appointements et salaires payés doit être déclaré sur des feuillets T4-T4A, fournis par le Bureau de district de l'impôt sur le revenu. (La Loi de l'impôt sur le revenu n'autorise pas la déduction d'un salaire payé par le mari à la femme ou vice versa. Si une telle somme est versée, elle doit être rajoutée au revenu du payeur.)

(c) Frais de téléphone liés à l'exercice de la profession.

(d) Salaire d'assistante:

Les noms et adresses des assistantes auxquelles un salaire est payé, ainsi que le montant payé, doivent être déclarés chaque année, au plus tard le dernier jour de février, sur le feuillet T4-T4A. (Ne pas confondre avec la déclaration d'impôt individuelle, la formule T1, qui doit être envoyée au plus tard le 30 avril de chaque année.)

(e) Frais de loyer:

On doit fournir le nom et l'adresse du propriétaire des locaux loués (de préférence) ou de l'agent [voir (g)]. On doit percevoir à la source une taxe de non-résident sur le loyer payé à des propriétaires non-résidents de locaux loués.

(f) Frais de poste et papeterie.

(g) Dépenses proportionnelles du dentiste exerçant à son domicile:

1. La résidence appartient au dentiste: Quand le dentiste exerce dans une maison qu'il possède et qu'il habite, il a droit, pour la surface occupée par le laboratoire, le cabinet et la salle d'attente, à une déduction proportionnelle des dépenses de la maison calculée d'après le rapport de cette surface à la superficie totale de la maison. Les frais comprennent les taxes, l'électricité, le chauffage, l'assurance, les réparations et l'intérêt hypothécaire. (Les nom et adresse du créancier hypothécaire doivent être mentionnés). N.B.—Voir article 2 (m) pour la dépréciation.

2. La résidence est louée par le dentiste: Le loyer est alors divisé proportionnellement s'il est payé par le dentiste. Le propriétaire de la maison assume toutes les dépenses mentionnées ci-dessus (paragraphe 1).

(h) Frais divers (ne figurant pas ailleurs):

Les frais portés à ce poste doivent se prêter à l'analyse et être étayés par des documents.

La déduction de dons de charité est autorisée jusqu'à 10 pour cent du revenu net total, à condition de fournir les reçus au Bureau de district de l'impôt. Les dons de charité effectués dans l'exercice de la profession ne doivent pas être classés avec les frais professionnels, ils constituent, comme toutes les autres formes de dons, une déduction du revenu général.

Les droits annuels payés aux organismes de réglementation qui accordent l'auto-

risation de pratiquer, ainsi que les cotisations d'association doivent être inscrits sur la déclaration comme frais professionnels.

Les frais de scolarité payés en 1965 et les années suivantes à une maison d'enseignement au Canada, pour un cours post-universitaire, sont déductibles, mais on ne peut pas déduire les dépenses de voyage et d'entretien occasionnés par un tel cours.

(i) L'intérêt versé sur une somme empruntée peut être soustrait du revenu professionnel si l'emprunt a été fait pour des besoins professionnels. Si la somme a été empruntée pour effectuer un placement, l'intérêt est déductible du revenu de placements. L'intérêt payé sur un emprunt effectué à des fins personnelles ne donne lieu à aucune déduction sur le revenu.

(j) La taxe d'affaire constitue une dépense professionnelle, mais non les impôts sur le revenu.

(k) Frais d'automobile:

Les dépenses de taxi et d'automobile encourues en gagnant le revenu professionnel sont déductibles lorsque le dentiste doit rendre visite au patient à domicile. Cependant le coût du transport entre le domicile du dentiste et son cabinet n'est pas déductible du revenu. (La façon de calculer la réclamation des dépenses d'automobiles est exposée dans le Bulletin de renseignements No. 28 de la Division de l'impôt du Ministère du Revenu National. Elle a été partiellement reproduite dans le numéro de mars 1965 du Journal, pp. 209-210.)

(l) Les cotisations des clubs mondains ne constituent une déduction du revenu que lorsque, et dans la mesure où, elles sont versées pour des raisons professionnelles, et tout dentiste qui les déduit peut être requis de prouver à la satisfaction des autorités fiscales que les sommes réclamées ont été dépensées entièrement et directement dans le but d'accroître son revenu professionnel. Les 'cotisations de clubs sociaux' représentent les cotisations ou droits, annuels ou mensuels, des membres; elles ne comprennent pas les droits d'admission ou d'entrée, ni l'achat d'une part du capital social d'un club, ni les frais de nourriture, de boisson ou de logement, ni les droits versés pour y rece-

voir des invités et autres du genre.

(m) Allocation du coût en capital (dépréciation):

La façon de calculer l'allocation du coût en capital aux fins de l'impôt est la même que celle de l'année dernière. Cependant, des modifications apportées aux Règlements de l'impôt sur le revenu ne permettront aux dentistes (et aux autres contribuables) de réclamer l'allocation de coût en capital que sur la moitié seulement des biens figurant dans les classes 3 (maison de brique—cabinet ou résidence servant et de domicile et de cabinet), 6 (maison de bois — cabinet ou résidence servant et de domicile et de cabinet) et 8 (matériel dentaire et instruments de \$100 ou plus, mobilier et accessoires de cabinet), qui ont été acquis après le 29 mars 1966 et avant le 1er avril 1967.

Pour tous renseignements supplémentaires, consultez les Règlements ou le Bureau de district de l'impôt.

FRAIS DE CONGRÈS

Les frais des congrès sont déductibles pour celui qui exerce une profession, mais l'allocation est limitée aux frais de deux congrès par année fiscale. La participation du contribuable au congrès doit se fonder sur des motifs professionnels. Les dépenses déductibles doivent être raisonnables et le contribuable doit indiquer:

1. Les dates auxquelles ou entre lesquelles le congrès s'est tenu, et le lieu.
2. Le nombre de jours de présence, justifié par un certificat de présence délivré par l'organisme responsable du congrès.
3. Les frais encourus, en distinguant les frais (a) de voyage, (b) de repas, (c) d'hôtel, à l'appui desquels on doit demander et conserver au moins les reçus.

Toutes les dépenses de nature personnelle, y compris celles qui seraient entraînées par la présence au congrès de l'épouse (ou du mari) du contribuable sont exclues de ce qui précède.

Les frais de participation à un congrès ne peuvent pas être déduits du revenu si celui-ci est un salaire; une telle déduction est alors interdite par l'article 5 de la Loi.

Le Ministère du revenu national a exprimé l'opinion que, généralement, le but professionnel d'un congrès commandité par une firme commerciale ou une organisation professionnelle canadienne, ne demande pas qu'il se tienne en dehors du Canada, lorsque l'organisation a un caractère national ou en dehors de la province, de la municipalité ou de la région du Canada où se limitent les activités de l'organisation. En conséquence, les dépenses encourues par suite de la participation à un congrès commandité par une organisation canadienne, qui s'est tenu en dehors de ces limites géographiques, ne sont généralement pas considérées comme déductibles pour le calcul du revenu. A cette fin, un congrès qui s'est tenu à l'occasion d'une croisière sera considéré comme ayant eu lieu en dehors du Canada.

RÉGIMES D'ÉPARGNE-RETRAITE ENREGISTRÉS

Le montant déductible pour ceux qui contribuent à un régime d'épargne-retraite enregistré se limite:

(a) Dans le cas d'un employé percevant un salaire et couvert par un plan ou un fonds de pension enregistré, (qu'il cotise au fonds de pension ou non)—à \$1,500 ou 20 pour cent du revenu gagné, moins le montant, s'il y en a un, qu'il est autorisé à déduire de son revenu pour sa contribution au fonds de pension.

(b) Dans les autres cas, au moindre de \$2,500 ou de 20 pour cent du revenu gagné. Le 'revenu gagné' comprend d'ordinaire le salaire perçu (avant toute déduction pour pension) ou le revenu provenant d'un commerce ou de l'exercice d'une profession, plus les revenus nets de loyers.

Sont déductibles les sommes qui ont été versées en 1968 et pendant 60 jours après la fin de l'année. Un versement effectué en janvier ou février 1968 ne peut pas être déduit en 1968 s'il aurait pu l'être en 1967.

Pour savoir si un régime futur ou existant donne droit à la déduction, on doit se renseigner auprès de la société qui offre le régime, car c'est elle qui normalement est responsable d'expliquer le régime et de le faire enregistrer.

Les dentistes qui ont demandé à bénéficier du régime d'épargne-retraite de l'Association dentaire canadienne (RERADC) avant le 15 février 1969 sont assurés qu'ils sont inscrits comme cotisants à un régime d'épargne-retraite enregistré et que leur contribution est déductible pour l'année fiscale 1968. La date limite des inscriptions et des contributions pour 1968 est fixée au 15 février 1969.

Un état de compte personnel et un reçu indiquant le montant des contributions seront adressés à chaque cotisant en mars 1969, à l'appui des déductions réclamées dans la déclaration d'impôt sur le revenu pour 1968.

Les demandes d'inscription au RERADC reçues après le 15 février 1969 donnent droit à la prorogation de l'impôt pour 1969.

PAIEMENT DE L'IMPÔT

Les particuliers qui retirent plus de 25 pour cent de leur revenu de sources autres qu'un traitement ou un salaire sont requis de payer l'impôt de chaque année par versements trimestriels au cours de l'année, aux dates suivantes: 31 mars, 30 juin, 30 septembre et 31 décembre.

DENTISTES RÉMUNÉRÉS PAR CONTRAT

La loi de l'impôt sur le revenu autorise à déduire certains frais d'un revenu constitué par un traitement.

Les frais déductibles comprennent: les frais de déplacement, les cotisations professionnelles, le loyer de bureau, le salaire d'un assistant ou de son suppléant, les

fournitures nécessaires à l'exercice de la fonction de l'employé.

Certaines conditions sont attachées à la déduction des frais. Les dispositions de la loi sont, en gros:

(a) Que les frais aient été encourus dans l'exercice des fonctions de l'employé.

(b) Que le contrat d'emploi stipule que les frais sont à la charge de l'employé.

(c) Pour réclamer les frais de déplacement, que l'employé soit contraint d'exercer les fonctions de son emploi loin du lieu d'affaires de son employeur. Les déplacements entre le domicile du dentiste et son cabinet sont exclus.

REVENU D'UNE SOCIÉTÉ

Les dépenses supplémentaires encourues par un associé et qui n'ont pas été payées par la société peuvent être déduites de la part de revenu de l'associé. Cependant l'associé doit être en mesure de justifier ces dépenses, d'expliquer pourquoi elles n'ont pas été assumées par la société et de montrer qu'elles ont été entreprises nécessairement pour gagner le revenu de la société.

IMPÔT PROVINCIAL DES PARTICULIERS

Chacune des 10 provinces lève son propre impôt sur le revenu des particuliers qui y résident. Les particuliers dont le revenu est soumis à l'impôt provincial ne sont pas tenus d'envoyer une déclaration provinciale d'impôt sur le revenu séparément, excepté pour la province de Québec.

Canada

La Northern Ontario Dental Association donne \$1,400 au Fonds pour l'enseignement

Les Drs F. A. Pollon et J. C. Shaw de Timmins, représentant 120 dentistes de la Northern Ontario Dental Association ont remis, le 22 octobre 1968, un chèque de \$1,400 au Fonds canadien pour l'enseignement dentaire. Les dentistes s'étaient cotisés pour cette somme lors de la réunion annuelle de la NODA à Kirkland Lake, le 12 septembre, afin d'établir une bourse. Les membres ont décidé, au vote, de remettre cet argent au FCED. La Northern Ontario Dental Association réunit les dentistes de Timmins, Kirkland Lake, North Bay, Sudbury, Sault Ste-Marie et ceux des localités voisines.

De nombreuses organisations dentaires remettent, chaque année, des sommes d'argent au FCED. Depuis l'établissement du Fonds en 1962, des organisations dentaires autres que l'Association dentaire canadienne ont fourni 14 pour cent du total des contributions. Nous pouvons nommer, parmi les donateurs les plus récents la Grey-Bruce-Dufferin Dental Society, de l'Ontario et la McGill University Dental Students Society de Montréal.

Chronique internationale

Onze Canadiens à la réunion de la FDI à Varna

Onze canadiens faisaient partie des 1,659 dentistes qui participaient à la 56^e

réunion annuelle de la Fédération dentaire internationale, qui eut lieu à Varna, Bulgarie, du 16 au 22 septembre 1968. Quarante quatre pays y étaient représentés. Les délégués officiels de l'Association dentaire canadienne étaient les Drs H. G. Poyton de Toronto, F. V. Currie de London, Ont., H. R. MacLean d'Edmonton et le secrétaire de l'ADC, le Dr W. G. McIntosh de Toronto. Les autres canadiens éminents présents à la réunion étaient les Drs A. E. Higgins de Toronto, M. C. Nordine, W. R. Pellow et J. M. Snelgrove de London, Ont., D. K. Sutherland de Simcoe, Ont., A. Vachon d'Ottawa et D.A. Eisner de Halifax.

Le Dr W. Stewart Ross d'Angleterre reste président de la FDI. Les autres administrateurs sont les Drs J. Stork des Pays-Bas, président-élu; Harold Hillenbrand des Etats-Unis, L. J. Baume de Suisse, Jacques Charon de France et A. Scheinen de Finlande, vice-présidents; Hans Freihofer de Suisse, porte-parole; G. H. Leatherman de Grande-Bretagne, secrétaire général et R. Braun d'Allemagne, trésorier.

L'assemblée générale a établi le budget de ses dépenses à £ 49,062 pour 1969, ce qui avec des rentrées estimées à £ 46,200 laisse un déficit de £ 2,862. L'assemblée a décidé que dorénavant les taux de souscription des associations membres seraient basés sur le dollar américain. En 1969, les associations membres paieront \$39 pour 100 membres. Ce montant sera porté à \$42 en 1970 et les années suivantes. Les membres correspondants paieront \$280 et les associations de membres affiliés \$28. Il a été décidé également d'amender les règlements pour y introduire comme pénalité intermédiaire, la perte du droit de vote pour les membres qui se dérobent à leurs obligations financières pendant deux années consécutives. En ce qui concerne les associations membres, avec ou sans droit de vote, elles cesseront automatiquement d'être membres de la FDI, si elles n'ont pas rempli leurs obligations financières pendant trois années consécutives.

La FDI visitera à nouveau New York, du 11 au 18 octobre 1969, lorsqu'elle y tiendra sa 57^e réunion annuelle, conjointement avec celle de l'American Den-

tal Association. Son quartier général sera le Park Sheraton. Bucharest, en Roumanie, a été choisi pour être le siège de la 58^e réunion annuelle qui aura lieu du 26 septembre au 1^{er} octobre 1970; la 59^e réunion annuelle se tiendra à Munich, Allemagne du 18 au 23 juin 1971 et le congrès dentaire mondial à Mexico, du 22 au 27 octobre 1972.

Les renseignements obtenus de 52 pays sur la main-d'œuvre et la formation dentaire, l'incidence des maladies dentaires et les services de santé dentaire seront publiés en 1969.

Il est possible de se procurer en anglais, français et allemand, les documents de travail sur la spécialisation en dentisterie, la pratique collective, les postures de travail, l'équipement et les services dentaires dans les hôpitaux, en s'adressant au: Dr G. H. Leatherman, FDI secretary general, 64 Wimpole St., London W.1, England.

Facultés dentaires canadiennes

La capacité des facultés canadiennes augmente

Les neuf facultés dentaires du Canada ont maintenant une capacité totale de 389 places pour les étudiants de première année, ce qui représente une augmentation sur les 375 de l'année dernière. La raison en est principalement l'élargissement de la classe de l'Université de la Colombie britannique.

De 1957 à 1967, les différentes facultés ont augmenté leur capacité en première année de 90 pour cent. D'ici 1972, elles s'attendent à ce que leurs installations leur permettent d'accueillir environ 600 étudiants de première année. Ces évaluations prennent en considération l'augmentation de la capacité dans les universités de Colombie britannique, d'Alberta et de Dalhousie de 40, 80 et 64 respectivement. L'Université de Western Ontario augmentera aussi le nombre des inscriptions en première année pour arriver à un maximum de 52 étudiants. L'Université de la Saskatchewan qui projette l'établissement d'une classe initiale de 10 étudiants pour

cette année, en acceptera éventuellement 150. L'Université McGill a l'intention d'augmenter sa capacité de première année à 70 dans un proche avenir. Ni Montréal, ni Toronto n'ont de plans immédiats dans ce sens, bien que Toronto ait l'intention d'étendre son programme d'études postgraduées. L'expansion, en cours actuellement à l'Université du Manitoba, permettra à la faculté dentaire d'accepter 50 étudiants chaque année, à partir de 1975. D'ici là, l'Université Laval, à Québec, devrait remettre leurs diplômes à ses premiers dentistes. Entre temps, on étudie la possibilité de créer de nouvelles facultés dentaires à Ottawa, Hamilton, Kingston, Toronto (York) et Calgary.

Economie

La Colombie britannique réinstitue les examens cliniques pour les candidats admis par le NDEB

Les dentistes qui détiennent le certificat accordé par le Bureau national d'examen dentaire du Canada doivent passer maintenant un examen clinique provincial, s'ils veulent obtenir le droit d'exercer en Colombie britannique. Cette décision du British Columbia College of Dental Surgeons entre en vigueur le 1^{er} novembre. Elle rétablit une ancienne règle, abandonnée depuis 1957, aux termes de laquelle le Collège exigeait que tous les candidats admis par le NDEB se soumettent à un examen clinique.

Pour de plus amples renseignements au sujet de cet examen clinique, veuillez vous adresser à: M. W. Ross Upton, Registrar, College of Dental Surgeons of BC, 325-925 West Georgia St., Vancouver 1, BC.

Ottawa approuve les sauvegardes mais s'oppose aux franchises

Le gouvernement fédéral a accepté la modeste sauvegarde contre les abus—\$1.50 par visite au médecin—que le gouvernement de la Saskatchewan a incluse dans le plan "medicare" de la province. Ce montant est destiné à réduire le nombre

des visites superflues. D'après Ottawa, des sauvegardes aussi minimes n'empêcheront pas les patients de recevoir les soins dont ils ont besoin. Le gouvernement fédéral continuera donc à rembourser à la Saskatchewan 50 pour cent des frais encourus dans le cadre de "medicare", les frais d'administration mis à part. Toutefois, Ottawa a refusé d'accepter une proposition du Manitoba qui aurait fait des sauvegardes l'équivalent d'une co-assurance. A son avis, elles constitueraient, à ce moment-là, un obstacle financier qui empêcherait les gens d'obtenir les soins médicaux dont ils ont vraiment besoin.

Recherche

Le Dr Selye décrit un nouveau médicament cardiaque aux dentistes montréalais

On a décrit l'amiloride—au Montreal Dental Club, le 16 septembre 1968. Il s'agit d'un facteur isolé récemment qui, ajouté à des diurétiques, aide à maintenir les niveaux de potassium, ce qui peut être utile pour traiter certains désordres cardiovasculaires. Le Dr Hans Selye, directeur de l'Institut de médecine expérimentale et de chirurgie à l'Université de Montréal a déclaré que l'amiloride supprime complètement les tensions cardiaques chez les animaux de laboratoire.

Le Dr Selye a une réputation mondiale comme expert dans le domaine des maladies provoquées par les tensions et ses travaux ont attiré l'attention des cardiologues des Etats-Unis, de l'Union soviétique et d'ailleurs. Il établit un rapport entre la tension et l'usure des tissus qui accompagne toute activité vitale et qui est, en quelque sorte, en fonction de l'intensité même de la vie.

Le Dr Selye a applaudi les récents succès des techniques de greffes du cœur, mais il a déclaré à ses auditeurs que les mesures prophylactiques donneraient éventuellement de meilleurs résultats dans le traitement des maladies cardiovasculaires. Il a rappelé à son auditoire, qu'en Amérique du Nord, ces maladies sont aussi fréquentes à elles seules que toutes les autres réunies.

De la gomme au phosphate en vente en Colombie britannique

Warner-Lambert Canada Ltd, a mis récemment à l'essai sur le marché une nouvelle gomme à mâcher qui contient du sucre traité au phosphate de calcium dibasique pour contrecarrer l'effet cariogène de cet hydrate de carbone à fermentation rapide. Le nouveau produit qui s'appelle "Action" est distribué par Adams Brands Ltd, une division de Warner-Lambert.

Deux études cliniques d'une durée de 30 et 36 mois sur plus de 500 enfants d'âge scolaire ont démontré une incidence nettement plus faible des caries chez les sujets qui avaient mâché de la gomme au phosphate, d'après le Dr P. J. Johnson, directeur de la thérapeutique dentaire chez Warner-Lambert. L'usage du sucre traité au phosphate de calcium dibasique laisse à la gomme le goût et la consistance des gommes à mâcher ordinaires, a déclaré le Dr Johnson, et elle est tout aussi acceptable pour les usagers.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du régime d'épargne-retraite de l'Association dentaire canadienne étaient les suivantes au 31 octobre: fonds d'obligations gouvernementales \$13.733; fonds d'obligations corporatives \$14.941; fonds d'actions ordinaires \$26.545. L'avoir total (valeur marchande) du régime se montait à \$9,204,445.95.

Au cours du mois précédent, les transactions, achats et ventes, d'actions ordinaires ont été les suivantes: achat 3,500 actions de Columbia Pictures et 3,000 actions de Blue Bell; vente 1,017 actions de Singer Company, 712 actions de Singer Company preferred, 2,000 actions de Great Lakes Paper et 700 actions de Syntex.

Pour de plus amples renseignements, veuillez écrire à: The Administrator of CDA sponsored Pension and Insurance Plans, Professional and Industrial Pensions Ltd., 2249 Yonge St., Toronto 7, Ont.

Canada and the Provinces

Northern Ontario Association Donates \$1,400 to Education Fund

F. A. Pollon and J. C. Shaw of Timmins, representing 120 dentists of the Northern Ontario Dental Association, presented a \$1,400 cheque to the Canadian Fund for Dental Education October 22. The money was collected from dentists for a bursary fund at the NODA's annual meeting in Kirkland Lake September 12. The members voted to turn the money over to CFDE. The Northern Ontario Dental Association comprises dentists from Timmins, Kirkland Lake, North Bay, Sudbury, Sault Ste. Marie and neighbouring communities.

CFDE receives various amounts of money annually from many organizations in the dental profession. Since the Fund's inception in 1962, 14 per cent of its total contributions have come from dental organizations other than the Canadian Dental Association. Two recent contributors are the Grey-Bruce-Dufferin Dental Society in Ontario and the McGill University Dental Students Society of Montreal.

Royal College Examination Results Announced

The Royal College of Dentists of Canada has announced the names of successful candidates in the Part I (Basic Sciences)

H. W. Reid, Toronto, a trustee of the Canadian Fund for Dental Education, and C. E. Peirce, Toronto, vice-chairman of CFDE and president of Ash Temple Limited, are shown (centre) receiving a cheque from F. A. Pollon, Timmins, Ont. (l.) and J. C. Shaw, also of Timmins (r.). The presentation was made at the Toronto office of CFDE by Drs. Pollon and Shaw on behalf of the 120 dentists of the Northern Ontario Dental Association.



examinations held September 16-19, 1968. They are:

Endodontics: J. S. Smith and C. D. Torneck, Toronto;

Oral Surgery: G. I. Baker, J. H. Gryfe and J. G. Zosky, Toronto; G. K. Hurd, Kitchener, Ont.; P. Mercier, Montreal; and J. A. Miller, St. John's, Nfld.;

Orthodontics: M. Brown and E. Luks, Toronto; R. G. Bozek, Burlington, Ont.; R. A. Mitchell, Vancouver; and W. J. Sinclair, Scarborough, Ont.;

Paedodontics: M. E. J. Curzon, Rochester, NY; and B. A. Richardson, Kitchener, Ont.;

Periodontics: H. I. Taub, Toronto; and K. H. Wright, London, Ont.;

Prosthodontics: H. J. Levin, Toronto.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on October 31: Government Bond Fund \$13,733; Corporate Bond Fund \$14,941; Common Stock Fund \$26,545. Total assets (market value) of the plan were \$9,204,445.95.

The following common stock portfolio purchases and sales occurred during the preceding month: Bought 3,500 shares Columbia Pictures and 3,000 shares Blue Bell; Sold 1,017 shares Singer Company, 712 shares Singer Company preferred, 2,000 shares Great Lakes Paper and 700 shares Syntex.

For further information please write to the Administrator of CDA sponsored Pension and Insurance Plans, Professional and Industrial Pensions Ltd., 2249 Yonge St., Toronto 7, Ont.

International Items

ADA Miami Meeting Draws 19,666

H. A. McGuirl of Providence, Rhode Island, is the new president of the American Dental Association. He was installed October 31 at the close of the ADA's 109th annual session in Miami Beach.

Resolutions and reports on licensure, continuing education and association dues were among the nearly 50 topics considered by the ADA House of Delegates. The House voted approval of resolutions urging state dental societies, in consultation with state boards of dentistry, to:

1. "Develop mechanisms to foster the continued education of dentists licensed in their jurisdictions," and

2. Give continuing consideration to methods of determining the qualifications of candidates for licensure.

The House of Delegates also voted to increase ADA membership dues by \$15 to \$55.

Dental Organizations

Nova Scotia Dentists Elect Dr. MacIntosh

E. L. MacIntosh, North Sydney, was recently elected president of the Nova Scotia Dental Association. He succeeds N. J. Layton of Truro. Other officers named with Dr. MacIntosh were: N. B. Anderson, Lunenburg, president-elect; C. E. Dexter, Halifax, vice-president; D. C. T. Macintosh, Halifax, secretary; and W. B. Coleman, Halifax, member-at-large. J. E. Merritt of Halifax was named delegate to the Canadian Dental Association Board of Governors.

Dr. Back is President of Northern Ontario Association

Max Back, North Bay, was elected president of the Northern Ontario Dental Association when that organization held its annual convention in Kirkland Lake in September. Other officers named with Dr. Back are R. J. Yakasovich, Sault Ste. Marie, vice-president, and K. A. O'Grady, North Bay, secretary-treasurer.

At the same meeting the association approved a donation of \$1,400 to the Canadian Fund for Dental Education.

The 1969 convention of the NODA will be held in North Bay, September 5-7.



The New Brunswick Dental Society held its annual meeting in Moncton September 21. Officers elected are shown (l. to r.) J. J. E. Alain, Bathurst, council member for the North Shore Dental Society; L. G. Zed, Saint John, vice-president; J. B. Sutherland, Woodstock, president; R. B. De Ware, Moncton, representative to the National Dental Examining Board and immediate past president; G. G. Orser, Fredericton, representative to the CDA Board of Governors; and G. R. Rowe, Nashwaaksis, secretary - treasurer - registrar.

Dr. White Installed as President of Regina Society

G. B. White was recently elected president of the Regina Dental Society. Other officers named with Dr. White are A. B. Mintz, vice-president; D. Korpus, secretary; and D. H. Klufas, treasurer.

Saskatoon Dentists Elect Dr. Sawa

At a recent meeting of the Saskatoon and District Dental Society S. O. Sawa was installed as president for 1968-69. Other officers are R. Chayka, vice-president, and Arthur Lambert, secretary-treasurer. M. J. MacDonnell was made an honorary

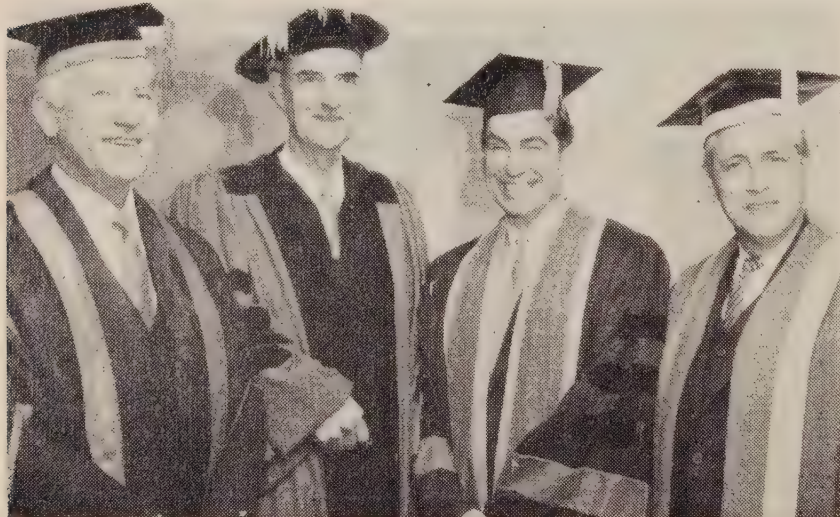
life member of the society at the same meeting.

Canadian Dental Schools

UWO Dental Sciences Building Opened

The new Dental Sciences Building at the University of Western Ontario was officially opened October 25 by M. B. Dymond, Ontario's health minister. The \$7,430,000 building is a nine level structure of 205,000 square feet. It has facilities for public clinics and for teaching the basic health sciences as well as laboratory and supporting facilities. It is the first build-

London Free Press Printing Company



Dignitaries attending the Friday, October 25 opening of the Dental Sciences Building at the University of Western Ontario were (l. to r.) Albert Trueman, UWO chancellor; R. G. Ellis, dean, Faculty of Dentistry, University of Toronto; W. J. Dunn, dean, Faculty of Dentistry, University of Western Ontario; and D. C. Williams, UWO president. Ontario Health Minister M. B. Dymond performed the official ribbon-cutting ceremony on Friday morning. In the afternoon Dr. Ellis received an honorary doctor of laws degree from Western University and gave the convocation address.



The Ladies' Auxiliary to the London and District Dental Society recently presented the University of Western Ontario with a donation exceeding \$2,000 to permit an annual award in the Faculty of Dentistry for proficiency at the third year level in paediatric dentistry. The award, worth \$100, is accompanied by an individual plaque. The recipient's name is also affixed to a permanent plaque hung in the Dental Sciences Building. Dean W. J. Dunn is shown receiving the plaque from Mrs. Duart Whiteman. They are flanked (l. to r.) by Mrs. Harvey Revington, Gordon Mogenson, W. R. Teteruck, Mrs. David Way, W. H. Feasby, Mrs. Robert Emmerton and Mrs. Jack Snelgrove.

ing on the UWO campus to be completely equipped for closed circuit television.

An honorary doctor of laws degree was conferred on R. G. Ellis, dean of the Faculty of Dentistry, University of Toronto, on the same day which also marked the 203rd convocation of the UWO. (See also Awards and Honours section.)

Alberta U Enrols 55 First Year Students

The University of Alberta has enrolled 55 students in its 1968-9 first year dental class. The 55 were accepted from among 209 applicants who sought admission. Twenty-five out of 69 applicants were also admitted to the first year class in dental hygiene.

Royal Canadian Dental Corps

Recent Promotions and Releases

Canadian Forces Headquarters recently announced the promotion to major of Capt. **A. N. Swanzey** of Cultus Lake, BC. Maj. Swanzey is currently serving in Europe.

Six officers have retired from the Royal Canadian Dental Corps. They are Majors **R. J. Bryant, T. C. Gaudet, W. H. Murray, J. J. L. Girard** and **A. T. Hinch** and Capt. **J. G. Thompson**.

Majors Bryant, Gaudet and Girard will establish private practices in Ontario, Nova Scotia and Quebec respectively. Maj. Murray is going to Florida and Capt. Thompson is travelling to Europe. Maj. Hinch has accepted an appointment with the Department of Veterans Affairs in Halifax.

Economics

Alberta Act Permits Clinical Exams for NDEB Applicants

The recently amended Dental Association Act permits the Alberta Dental Association to set clinical examinations for dentists who hold the certificate of the National Dental Examining Board of Canada and wish to practise in Alberta. The act also increases disciplinary fines to a limit of \$500.

In neighbouring British Columbia, the College of Dental Surgeons recently rein-

stituted mandatory clinical examinations for NDEB applicants who desire to practise in that province.

Dental Benefits Included in BC Medical Plan

The Medical Services Association of British Columbia has enlarged benefits under its extended health plan to cover some dental care. Membership in the plan is restricted to groups of 10 or more. Premiums for dental coverage range from \$1.40 a month for single persons to \$4.20 a month for families. Benefits include two annual examinations, some radiographs, prophylaxis twice a year and topical application of fluoride once a year. There is no limit on extractions but restorations, dentures and certain other types of treatment are excluded. An MSA spokesman said that coverage is likely to become more comprehensive and more universal as time goes on.

The dental profession-sponsored Dental Services Association of British Columbia (in cooperation with the CU&C Health Services Society) operates a comprehensive dental plan covering up to 75 per cent of dental costs excluding orthodontic services. Premiums for this plan range from \$4 a month for single persons to around \$10.50 for families. Several groups including trade unions are enrolled in this plan.

Ottawa Okays Deterrents, Opposes Deductibles

The federal government has accepted the modest deterrent charges — \$1.50 for each visit to a physician — imposed by the Saskatchewan government on the province's medicare plan. The charges are intended to reduce unjustifiable demands on physicians' time. In Ottawa's opinion such minor deterrents do not impair access to needed services. The federal government will therefore continue to reimburse Saskatchewan for 50 per cent of its medicare costs, exclusive of administration costs. Ottawa, on the other hand, has refused to go along with a Manitoba pro-

posal which would carry deterrents to the level of co-insurance. That, according to Ottawa, would interpose a substantial financial barrier and would discourage people from seeking medical aid when genuinely needed.

Ottawa Wants to Withdraw From Medicare by 1973

Ottawa intends to turn medical care insurance and certain other social welfare programs, now handled on a cost-sharing basis by federal and provincial governments, over to provincial control. The decision, according to Prime Minister P. E. Trudeau, is at least two years old and was announced by former Finance Minister Mitchell Sharp in 1966.

Conservative opposition leader Robert Stanfield, speaking in the House of Commons November 9, noted that the federal government had announced that it hoped to pull out of the medical care insurance program after five years. He asked whether the five years date from the time a particular province joined the plan or from the date the Canada Medical Care Act came into effect. Prime Minister Trudeau replied it would date from the time the Act came in, July 1 of this year.

Dentists Should Delegate More Auxiliary Duties Now

The dental profession should begin to delegate more dental care responsibilities to auxiliary personnel now instead of simply recommending further study, a Minnesota dental educator recommended at the American Dental Association's scientific session in Miami Beach October 30.

R. J. Isaacson, professor of orthodontics at the University of Minnesota Dental School, said that "a sudden, marked increase in demand for dental care occurring over a relatively short period of time cannot be met by traditional patterns of dental education."

He pointed out that while auxiliaries have played an increasingly larger role in the delivery of health care, "the duties delegated to dental auxiliary personnel

have been limited by relatively specific state dental practice acts." Dr. Isaacson said that the skills of auxiliary personnel should be employed in a manner that will supplement the knowledge and skill of a fully trained dentist. "The public is entitled to expect and receive the best quality of care available and this requires that final authority and responsibility rest with the most comprehensively trained person, the dentist," he explained.

He said that "the maximum expansion of available care consistent with protecting the public's interest would be best served by [state boards of dentistry] identifying those portions of dental practice that must be performed by the licensed dentist . . . leaving it to his judgment to delegate those tasks not identified."

US Commission Favours Relicensing and Peer Review

The US Health Manpower Commission appointed by President Johnson has come out in favour of relicensing and peer review of health professionals.

The commission says that health professionals must continue to have ready access to the latest knowledge after they are licensed and in practice. Journals and standard reference texts are insufficient, and simply making educational opportunities available will not assure their utilization.

The commission also recommends that professional societies, health insurance

organizations and government develop and extend various peer review procedures for maintaining high quality health care. Peer review, the commission suggests, should be performed at the local level with professional societies acting as sponsors and supervisors.

Research

Dr. Selye Describes New Cardiac Drug to Montreal Dentists

Amiloride — a very recently isolated compound which, when added to diuretics, helps to maintain potassium levels and may prove useful in certain cardiovascular disorders — was described to the Montreal Dental Club September 16. Hans Selye, director of the Institute of Experimental Medicine and Surgery at the Université de Montréal, said that amiloride gives complete protection against cardiac stress in laboratory animals.

The world renowned authority on stress-induced diseases, whose work has attracted attention from cardiologists in the United States, the Soviet Union and elsewhere, likened stress to the wear and tear of body tissue which accompanies any vital activity and which, in a sense, parallels the intensity of life.

Dr. Selye praised recent successes with cardiac transplant techniques but told his listeners that prophylactic measures hold greater promise for the eventual control



Hans Selye (l.), director of the Institute of Experimental Medicine and Surgery at the Université de Montréal, addressed the Montreal Dental Club September 16. Dr. Selye is shown conversing with G. D. Armstrong, MDC president.

of cardiovascular diseases. The prevalence of these disorders, he reminded the audience, now equals the sum of all other diseases in North America.

Fluoridation

Fifth Fluoridation Law Passed in Michigan

Governor George Romney last July 19 signed a law requiring all Michigan communities without fluoridation to take action on the measure within five years. During this period, communities can be exempted from the requirement by passage of a local ordinance or by a referendum vote against fluoridation. The law prohibits the state health department from ordering fluoridation.

The Michigan Dental Association had previously launched an all-out campaign to work for more positive legislative action. An earlier fluoridation bill suffered a hectic passage through the state legislature. The law finally enacted has little resemblance to this original bill.

Four other American states which have enacted fluoridation legislation are Connecticut, Minnesota, Illinois and Delaware.

Tablets No Match for Fluoridation

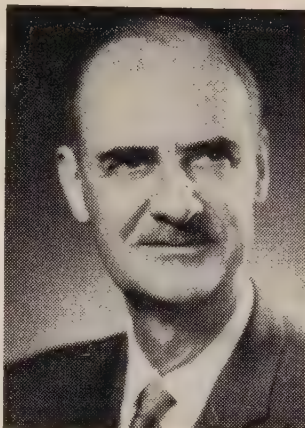
The Council on Dental Health of the American Dental Association has called the provision of free fluoride tablets to children "a very poor alternative to fluoridation of the public water supply."

"It is obvious that any program that depends upon the individual initiative and unfailing follow-through of a great number of people cannot be an effective public health measure," the Council said in a recent statement.

The Council identified several shortcomings to the distribution of fluoride tablets to a large population. These are the difficulty of getting tablets to all children who could benefit from them and the improbability that parents will consistently give their children tablets daily

for the duration of the tooth developmental years.

Awards and Honours



R. G. Ellis

R. G. Ellis, dean, Faculty of Dentistry, University of Toronto, was awarded an honorary doctor of laws degree by the University of Western Ontario on October 25 when the university held its 203rd convocation. Dr. Ellis has been a member of the teaching staff at Toronto's dental faculty since 1931. He was appointed dean in July 1947. Dr. Ellis served as chairman of the Associate Committee on Dental Research, National Research Council, 1944-54 and the Canadian Dental Association's Council on Education, 1954-58. In 1960 he was made an honorary life member of the Academy of Dentistry, Toronto, and in 1967 he was awarded the Centennial Medal in recognition of his work. He is a fellow of the American College of Dentists and the Royal College of Surgeons of England and an honorary member of the Royal Society of Medicine of the United Kingdom. In 1958 Dr. Ellis was president of the American Association of Dental Schools.

The Council of the Faculty of Dentistry, University of Toronto, recently announced **Robert Lundy** of Toronto as the winner of the Ronson Scholarship in Periodontics for the 1968-69 session. The scholarship, which has a value of \$2,000, is open to all students entering the first year of the postgraduate course in periodontics. The winner is selected each year on the basis of scholarship and proficiency.

C. C. Clermont and **W. H. Dixon** were elected honorary life members at the recent annual meeting of the Regina Dental Society.

Deaths

Anderson, John Lorne. 87. Orillia, Ont. Royal College of Dental Surgeons of Ontario, 1905. 25-10-68. Survived by Clennis L. (wife) and Dr. D. L. Anderson (son) and Mrs. G. Capling (sister).
 Ante, Irvin Henry. 81. Toronto. Royal College of Dental Surgeons of Ontario, 1914. 6-11-68. Survived by Corinne (wife); Dr. Erve (son); Mrs. William Bushnell and Mrs. William Moffatt (daughters); and 10 grandchildren.
 Corrigan, James Ernest. 61. Charlottetown. Tufts University, 1932. 17-10-68. Survived by Dorothy (wife); Ernest (son); and Catherine (daughter).
 Decker, Robert Seneca. 79. Edmonton. Royal College of Dental Surgeons of Ontario, 1912. 1-11-68. Survived by Cora Vivian (wife); Mrs. A. Spencer

(daughter); G. E. Decker (nephew); two granddaughters; and three great-grandsons.
 Elliot, Cyril Augustus. 70. Van Nuys, Calif., USA. Royal College of Dental Surgeons of Ontario, 1921. 30-10-68. Survived by James W., DDS and Robert A., MD (sons). Associate member CDA.
 LeBlanc, Georges Omer. 81. Bedford, Qué. Université de Montréal, 1917. 16-10-68.
 Murray, Thomas Ross. 61. Montreal. McGill University, 1931. 25-10-68. Survived by Ruth (wife); Lt. Cmdr. Edward (son); Mrs. L. Sankey (daughter); Mrs. John Sargent and Mrs. Hugh Vallance (sisters); and four grandchildren.
 Richardson, Almond Keith. 69. Toronto. Royal College of Dental Surgeons of Ontario, 1923. 30-10-68. Survived by Dorothy (wife) and Mrs. Robert Richardson, Mrs. Lucien Michaud and Mrs. Harry Flanagan (sisters).
 Scott, William Hudson. 75. Edmonton. Royal College of Dental Surgeons of Ontario, 1917. 2-10-68. Survived by Bertha (wife); Mrs. R. M. Watt and Mrs. Norman Hager (daughters); and seven grandchildren.

in memoriam

Edmund A. Grant

E. A. Grant of Toronto died on September 29, 1968, after a lengthy illness, at the age of 85. Born in Toronto in 1883, he graduated from the Royal College of Dental Surgeons of Ontario in 1906. He was an associate member of the Canadian Dental Association.

Dr. Grant was a former director of dental services for the Toronto Department of Public Health, having served for 32 years from 1921 until 1953. He was the first person to occupy this position on a continuing basis.

During his lifetime Dr. Grant was active in many dental organizations. He was a former president of the Ontario Dental Association and the Academy of Dentistry (Toronto) and served as secretary-treasurer of the Canadian Dental Association, the Canadian Dental Research Foundation and the Canadian Dental Hygiene Council. In World War I he was a captain with the Canadian Army Dental Corps.

Dr. Grant was head of the Dental Identification Team which contributed so much in the identification of the victims of the S.S. Noronic fire disaster in Toronto harbour on September 17, 1949.

Besides his wife, Ruth, Dr. Grant is survived by a son, Cecil; a daughter, Lois; a brother, Alan; three sisters, Mrs. Harold Bickerstaff, Mrs. Harley Shutt and Mrs. Edgar Love; and two grandchildren.

Additions • Acquisitions

- ANDERSON, W. A. B. and SCOTTI, T. M. Synopsis of pathology. Ed. 7. St. Louis, Mosby, 1968. 957 p. illus. \$11.55
- BELL, W. E. Synopsis; oral and facial pain and the temporomandibular joint. Dallas, Texas, The Author, 1967. 167 p. \$13.21
- BERTRAM, U. Xerostomia; clinical aspects, pathology and pathogenesis. (Acta Odontologica Scandinavica, Vol. 25, Sup. 49.) Stockholm, 1967. 126 p. illus. \$10.00
- COWDRY, E. V. The care of geriatric patient. St. Louis, Mosby, 1968. 430 p. illus. \$17.35
- DENTAL CLINICS OF NORTH AMERICA, The — July 1968. Orthodontics. Philadelphia, Saunders, 1968. Pages 267-557. illus.
- DENTAL CLINICS OF NORTH AMERICA, The — November 1968. Symposia on I. Dental radiography, II. Dental photography. Philadelphia, Saunders, 1968.
- EUROPEAN ORTHODONTIC SOCIETY, 1967. Report of the forty-third congress held in the Kursaal, Berne, Switzerland, July 1-5, 1967. 473 p. illus. \$10.81
- EWEN, S. J. and GLICKSTEIN, C. Ultrasonic therapy in periodontics. Springfield, Thomas, 1968. 124 p. illus. \$12.50
- GOLDMAN, H. M. and COHEN, D. W. Periodontal therapy. Ed. 4. St. Louis, Mosby, 1968. 1072 p. illus. \$25.30
- GRANT, M. Handbook of preventive medicine and public health. Philadelphia, Lea & Febiger, 1967. 242 p. 20 Fig. \$6.75
- KRUGER, G. O. Textbook of oral surgery. Ed. 3. St. Louis, Mosby, 1968. 593 p. illus. \$19.25
- LANGA, H. Relative analgesia in dental practice; inhalation analgesia with nitrous oxide. Philadelphia, Saunders, 1968. 283 p. illus. \$18.90
- MANSON, J. D. A comparative study of the postnatal growth of the mandible. London, Henry Kimpton, 1968. 146 p. 122 Fig. \$5.92
- NOLTE, W. A., ed. Oral microbiology. St. Louis, Mosby, 1968. 436 p. illus. \$15.95
- PINDBORG, J. J. Atlas of diseases of the oral mucosa. Philadelphia, Saunders, 1968. 215 p. illus. \$30.25
- SHANNON, I. L. Deleterious effect of dentifrice abrasives on protective capacity of stannous fluoride solutions. Brooks Air Force Base, Texas. USAF School of Aerospace Medicine, March 1968. 6 p.
- SUOMEN NAISHAMMASLAAKARIT JULKAISU 4. The 25th anniversary publication of the Finnish Women Dentists' Association. Helsinki, 1968. 189 p. illus.
- TOBIAS, P. V. Olduvai gorge: the cranium and maxillary dentition of Australopithecus (Zinjanthropus) boisei. Vol. 2. Edited by Dr. L. S. Leakey. Cambridge, at the University Press, 1967. 264 p. illus. \$14.50
- UNIVERSITY OF TEXAS M. D. ANDERSON HOSPITAL AND TUMOR INSTITUTE. Radiation biology and cancer. A collection of papers presented at the twelfth annual symposium on Fundamental Cancer Research, 1958. Austin, University of Texas Press, 1959. 493 p. illus.
- USAF SCHOOL OF AEROSCOPE MEDICINE. DENTAL SCIENCES DIVISION. Modular casework guidance for dental treatment rooms. Brooks Air Force Base, Texas, July 1967. 99 p. illus.
- WALTHER, D. P. Orthodontic notes. Ed. 2. Bristol, John Wright & Sons Ltd., 1967. 219 p. illus. \$3.40
- WICTORIN, L. Bone resorption in cases with complete upper denture; a quantitative roentgenographic - photogrammetric study. (Acta Radiologica, suppl. 228, 1964.) Copenhagen, Munksgaard, 1964. 97 p. illus. \$8.90
- YEAR BOOK OF DENTISTRY, 1967-1968. Chicago, Year Book Medical Publishers, Inc., 1968. 480 p. illus. \$9.90

Annual Index

January - December 1968 • Volume 34

A

ABSCESS

ALVEOLAR

Wolch, Isadore and Ross, Arthur — A case of a misleading fistula—214

ALBERTA DENTAL ASSOCIATION

Checks and balances—292 (Editorial)

AMALGAM

FILLINGS

Attalla, M. N. and Gibb, G. H. — Failures in Class II amalgam restorations — 11

Wann, W. L. — Amalgam restorations at the minimum mercury content — 35 (Abstract)

ANDERSON, D. L.—Oral cancer incidence in central and western Canada—180

ANDERSON, J. N.—Applied dental materials. Ed. 3 — 625 (Book Review)

ANDERSON, J. N. and STORER, ROY — Immediate and replacement dentures — 53, 460 (Book Review)

ANAESTHESIOLOGY

Macneil, W. H. — Differences between anilide and ester local anaesthetic agents — 498

Markovitch, Eugene—The history and development of general anaesthesia in dentistry -- 305

ANTHROPOLOGY

The human saga—1 (Editorial)

DENTAL

Sperber, G. H. — Alberta Faculty receives cast of fossil mandible of *Homo habilis* — 32

ANTIBIOTICS

IN ORAL SURGERY — lincomycin

— lincomycin

Gyde, M. C. and Jarjour, E. G. — Oro-antral fistula treated with lincomycin: report of case — 536

ARTICULATION AND OCCLUSION

NATURAL TEETH

Frisch, Joe., Jones, R. A., Shell, D. D. and Lister, R. L. — Occlusal adjustment technique in surgical prognathism procedures — 217 (Abstract)

ARTICULATORS

Beck, H. O. — Jaw registrations and articulators — 34 (Abstract)

ASSOCIATIONS AND SOCIETIES, Dental

Checks and balances—292 (Editorial)

Student members—349 (Editorial)

ATTALLA, M. N. — Effect of beechwood creosote and chloramine on periapical tissue of dogs — 190

The role of dental pulp fluid in healing small surgical pulp exposures—641

ATTALLA, M. N. and GIBB, G. H.—Failures in Class II amalgam restorations — 11

AVERILL, H. M., AVERILL, JEANNE E. and RITZ, ANGELINE G. — A two year comparison of three topical fluoride agents — 605 (Abstract)

AVERILL, JEANNE E., RITZ and AVERILL — See Averill, H. M.

B

BABEAUX, W. L. and ZIPKIN, I. — Dental aspects of the prenatal administration of fluoride — 218 (Abstract)

BACTERIOLOGY

Mills, W. H. — Mechanisms of antimicrobial defence — 205

BAKER, G. I., CHAPNICK and MATCHETT — See Chapnick, Paul

BANERJEE, S. C. — Metastasis to the mandible — 97 (Abstract)

BAUME, L. J. — Dentofacial anomalies in 11,318 children of French Polynesia—518

BECK, H. O. — Jaw registrations and articulators — 34 (Abstract)

BELLIVEAU, N. J. — Medical manpower problems: today and tomorrow—244

BERGGREN, H. — Topical fluorides (including dentifrices) — 218 (Abstract)

BERNSTEIN, D. S., SADOWSKY, NORMAN, HEGSTED, D. M., GURI, C. D. and STARE, F. J. — Prevalence of osteoporosis in high- and low-fluoride areas of North Dakota—138 (Abstract)

BERRY, H. M., PHILLIPS and ENNIS — See Ennis, L. M.

BONE

DISEASES

Bernstein, D. S., Sadowsky, Norman, Hegsted, D. M., Guri, C. D. and Stare, F. J. — Prevalence of osteoporosis in high- and low-fluoride areas in North Dakota — 138 (Abstract)

Morgan, G. A. and Morgan, P. R. — Periapical fibro-osteo-cementoma—123

Smylski, P. T. and Hurd, G. K. — Osteomyelitis of the mandible in an alcoholic patient: case report — 237

BOOK REVIEWS

Anderson, J. N. — Applied dental materials. Ed. 3 — 625

Anderson, J. N. and Storer, Roy — Immediate and replacement dentures — 53, 460

Brecker, S. C. — Clinical procedures in occlusal rehabilitation. Ed. 2 — 112

Cardarelli, N. F. — Barnacle cement as a dental restorative adhesive — 623

Chipping, John—Your teeth—512

Cussler, Margaret and Gordon, Evelyn W. — Dentists, patients, and auxiliaries — 623

Dowson, John and Garber, F. N. — A chairside manual of clinical endodontics — 460

Drummond-Jackson, S. L., ed. Intravenous anaesthesia. Ed. 3—513

Ennis, L. M., Berry, H. M. and Phillips, J. E. — Dental roentgenology. Ed. 6—231

Febres-Cordero, F. — Origenes de la Odontologia (Origins of dentistry)—51

Gallagher, W. N. — Dental roentgenology review — 624

- Gaunt, W. A., Osborn, J. W. and Ten Cate, A. R. — Advances in dental histology — 174
- Gilmore, H. W. — Operative dentistry — 513
- Hartland, John — Medical and dental hypnosis and its clinical applications — 173
- Hirschfeld, Leonard and Geiger, Arnold — Minor tooth movement in general practice. Ed. 2 — 52
- Hollander, L. N. — Modern dental practice: concepts and procedures — 53
- Hughes, F. Norman and Rotenberg, G. N. — Compendium of pharmaceuticals and specialties (Canada) 1968. Ed. 4 — 570
- Husted, Erik and Hjorting-Hansen, Erik, ed. — Oral surgery: transactions, 2nd Congress of the International Association of Oral Surgeons — 50
- Johnston, J. F., Mumford, George and Dykema, R. W. — Modern practice in dental ceramics — 52
- Jorgensen, N. B. and Hayden, Jess, Jr. — Premedication, local and general anesthesia in dentistry — 113
- Killey, H. C. — Fractures of the mandible — 232
- Killey, H. C. and Kay, L. W. — Benign cystic lesions of the jaws: their diagnosis and treatment — 52
- Kornfeld, Max — Mouth rehabilitation: clinical and laboratory procedures — 567
- Kutscher, A. H., Zegarelli, E. V., Hyman, G. A., McLean, Patricia and Kutscher, Helene W. — Pharmacology for the dental hygienist — 51
- Lura, H. E. — The non-acid complexing theory of dental caries — 568
- McCarthy, F. M. — Emergencies in dental practice — 175
- Miles, A. E. W., ed. — Structural and chemical organization of teeth — 511
- Nicholls, E. — Endodontics — 175
- Peterson, Shailer — Clinical dental hygiene. Ed. 3 — 568
- Peterson, Shailer, ed. — The dentist and his assistant. Ed. 2 — 172
- Peterson, Shailer and Winnett, W. B. — Review and test manual for dental assistants — 514
- Peyton, F. A. — Restorative dental materials. Ed. 3 — 622
- Sarner, Harvey — The business management of dental practice — 231
- Scott, J. H. — The essentials of oral anatomy — 232
- Shore, N. A. and Shore, Miriam F. — How to test and hire for the professional office — 622
- Skinner, E. W. and Phillips, R. W. — The science of dental materials. Ed. 6 — 570
- Steele, Pauline F. — Dimensions of dental hygiene — 111
- Stoll, Frances A. and Catherman, Joan L. — Dental health education — 50
- Swain, R. H. A. and Dodds, T. C. — Clinical virology — 511
- The mechanisms of tooth support. A symposium, Oxford, July 6-8, 1965 — 173
- Treweeke, M. B. — A guide to dental practice — 174
- USAF School of Aerospace Medicine. Dental Sciences Division — Modular casework guidance for dental treatment rooms — 624
- US Department of Health, Education & Welfare. National Centre for Health Statistics. Vital and Health Statistics. PHS Publication No. 1,000. Series 11, No. 23 — Decayed, missing and filled teeth in adults — United States, 1960-1962 — 172
- US Department of Health, Education and Welfare. National Centre for Health Statistics. Vital and Health Statistics. PHS Publication No. 1,000, Series 2, No. 25, 1968 — Orthodontic treatment priority index — 567
- US Department of Health, Education and Welfare. National Centre for Health Statistics. Vital and Health Statistics. PHS Publication No. 1,000, Series 11, No. 27 — Total loss of teeth in adults, United States, 1960-1962 — 569
- Walter, J. B., Hamilton, Margaret C. and Israel, M. S. — Principles of pathology for dental students — 512
- Wood, L. B. — A handbook of dental malpractice — 175
- World Health Organization — World directory of dental schools — 174
- BOURNE, C. C. — Eleazar Parmly: Montreal school-boy and dental student — 385
- BRADLEY, R. E., POWERS and TUSSING — See Powers G. K.
- BRECKER, S. C. — Clinical procedures in occlusal rehabilitation. Ed. 2 — 112 (Book Review)
- BRIDGEWORK
- Sykora, O. P. — Direct veneers of a thermoplastic crown and bridge veneering material — 357
- PINS
- Möllersten, Lennart — The Pontostructor paralleling instrument in restorative dentistry — 67
- BROWN, H. K., POWNALL and YEO — See Yeo, D. J.
- BROWN, H. K., YEO, D. J. and POWNALL, K. F. — Dentistry's participation in public health — 312

C

- CAMPBELL, J. MENZIES — Evading dentists' bills — 543
- CANADIAN DENTAL ASSOCIATION
- A stronger CDA costs seven more cents a day — 233 (Editorial)
- Student members — 349 (Editorial)
- Taxes on dental items — 549
- The 1969 budget — 405 (Editorial)
- ANNUAL MEETING
- Governors approve \$25 CDA grant increase; accept children's plan — 426
- Preliminary program for the 1968 national convention — 139
- Where the mountains dip to the sea — 115 (Editorial)
- EXECUTIVE COUNCIL
- Executive Council — Five year projection of CDA services and fiscal needs — 255
- CANCER
- METASTASIS
- Banerjee, S. C. — Metastasis to the mandible — 97 (Abstract)
- ORAL
- Anderson, D. L. — Oral cancer incidence in central and western Canada — 180
- Mouth detectives — 177 (Editorial)
- CARDARELLI, N. F. — Barnacle cement as a dental restorative adhesive — 623 (Book Review)
- CARIES, Dental
- AETIOLOGY AND CONTROL
- Paszi, Michael and Goldner, M. — Bacteriological examination of swab test cultures for caries activity — 413
- FLUORIDE FOR PREVENTION
- Averill, H. M., Averill, Jeanne E. and Ritz, Angeline G. — A two year comparison of three topical fluoride agents — 605 (Abstract)
- Babeaux, W. L. and Zipkin, I. — Dental aspects of the prenatal administration of fluoride — 218 (Abstract)
- Bernstein, D. S., Sadowsky, Norman, Hegsted, D. M., Guri, C. D. and Stare, F. J. — Prevalence of osteoporosis in high- and low-fluoride areas in North Dakota — 138 (Abstract)
- Gish, C. W. and Muhler, J. C. — Effectiveness of a stannous fluoride-calcium pyrophosphate dentifrice on dental caries in children whose teeth calcified in a natural fluoride area — 35 (Abstract)
- Horowitz, H. S. and Thompson, Mary B. — Evaluation of a stannous fluoride dentifrice for use in dental public health programs: 3. Supplementary findings — 604 (Abstract)
- Jenkins, G. N. — The mechanism of action of fluoride in reducing caries incidence — 605 (Abstract)
- Scola, F. T. and Ostrom, C. A. — Clinical evaluation of stannous fluoride when used as a constituent of a compatible prophylactic paste, as a topical solution, and in a dentifrice in naval personnel — 34 (Abstract)
- FLUORIDE FOR PREVENTION — fluoridation
- Hann, H. J. — Optimum fluoride levels for community water supplies — 250
- FLUORIDE FOR PREVENTION — supplements
- Gedalia, I. — Fluoride tablets — 605 (Abstract)
- Mühlemann, H. R. — Fluoridated domestic salt: a discussion of dosage — 604 (Abstract)

- Restrepo, Dario — Salt fluoridation: an alternate measure to water fluoridation — 604 (Abstract)
- Richardson, A. S. — Parental participation in the administration of fluoride supplements — 604 (Abstract)
- FLUORIDE FOR PREVENTION** — topical application
- Berggren, H. — Topical fluorides (including dentifrices) — 218 (Abstract)
- Scola, F. T. and Ostrom, C. A. — Clinical evaluation of stannous fluoride when used as a constituent of a compatible prophylactic paste, as a topical solution, and in a dentifrice in naval personnel — 34 (Abstract)
- INCIDENCE**
- Finn, S. B. and Jamison, H. C. — The effect of a dicalcium phosphate chewing gum on caries incidence in children: 30 month results — 218 (Abstract)
- McPhail, C. W. B. — Epidemiology and its application to dental disease — 476
- CARLIN, R. T. and SELDIN, REUBIN — Sialography: a useful aid in diagnosing parotid tumours — 217 (Abstract)
- CATHERMAN, JOAN L. and STOLL — See Stoll, Frances A.
- CAVITIES**
- PREPARATION**
- Roydhouse, R. H. — Penetration around the margins of restorations: 2. Nature and significance — 21
- CEMENTOMA**
- Morgan, G. A. and Morgan, P. R. — Periapical fibro-osteo-cementoma — 123
- CHAPNICK, PAUL, MATCHETT, R. W. and BAKER, G. I. — Hyperparathyroidism: review and case report — 361
- CHAREST, ANDRE — New method for surgical correction of maxillary protrusion — 630
- CHATWIN, J. V. P., DELAQUIS, FERNANDE M. and WALKER, C. B. — Accuracy of recall of dental care received during the preceding year — 409
- CHAVES, MARIO M. — The FDI and the World Health Organization — 646
- CHEWING GUM**
- Finn, S. B. and Jamison, H. C. — The effect of a dicalcium phosphate chewing gum on caries incidence in children: 30 month results — 218 (Abstract)
- CHIPPING, JOHN — Your teeth — 512 (Book Review)
- CLEFT PALATE AND CLEFT LIP**
- ORTHODONTIC TREATMENT**
- Oliver, H. T. — Orthodontic treatment of the newborn with clefts of the lip and palate — 196
- COLLETT, H. A. — Motivation: a factor in denture treatment — 138 (Abstract)
- CORRESPONDENCE**
- Anderson, D. L. — Oral cancer incidence — 293
- Blackwood, Lois A. — Manitoba hygienists offer placement service — 60
- Butler, Esmond — 'Heritage' issue — 4
- Campbell, W. G. — 'Heritage' issue — 4
- Casey, C. A. — Readers' opinions of the Journal — 629
- Castaldi, C. R. — Children's dental health plan — 235
- Castaldi, C. R. — Growth and development study in French Canadian children — 236
- Drummond-Jackson, S. L. — Intravenous anaesthesia — 576
- Ferguson, John — Student membership — 576
- Freeman, G. R. and Adler, E. — Radiation hazards in dentistry — 516
- Goodin, I. F. — 'Heritage' issue — 4
- Grady, L. K. — 'Heritage' issue — 60
- Hendershot, Leland C. — 'Heritage' issue — 60
- Hillenbrand, Harold — 'Heritage' issue — 4
- Kearney, B. P. — 'Heritage' issue — 60
- Kenny, D. J. — 'Heritage' issue — 4
- Kevorkyan, K. — 56th annual session, FDI — 179
- Kurer, P. F. — Kurer anchor system — 464
- Lawrence, L. — A reader writes from Africa — 517
- Löcke, R. S. — Intravenous anaesthesia — 629
- Myers, Fred — American dentist seeks former dental assistant — 179
- Peirce, C. E. — Readers' opinions of the Journal — 629
- Phillips, D. E. — Saskatchewan dentist to work in Africa — 576
- Poyton, H. G. — Radiation hazards in dentistry — 628
- Richards, A. G. — Radiation hazards in dentistry — 517
- Ross, W. Stewart — From the FDI president — 463
- Stevens, Peter — The king of Spadina Crescent — 59
- Stoneman, D. W. — Radiation hazards in dentistry — 517
- Tanner, D. M. — DVA and provincial fee schedules — 293
- Warner, F. S. — Guy's Hospital Directory — 406
- CROWNS**
- Sykora, O. P. — Direct veneers of a thermoplastic crown and bridge veneering material — 357
- PINS**
- Möllersten, Lennart — The Pontostructor paralleling instrument in restorative dentistry — 67
- CUSSLER, MARGARET and GORDON, EVELYN W. — Dentists, patients, and auxiliaries — 623 (Book Review)
- CYSTS**
- Freedman, G. L., Hooley, J. R. and Funk, E. C. — Unusual radiographic appearance of a probable incisive canal cyst — 317
- Gilbert, A. G. — Dentigerous cyst of the maxillary antrum: case report — 132
- Parnell, A. G. — Primordial cyst of the jaw: case report — 61

D

DAVIDSON, P. O., HARYETT and SANDILANDS — See Haryett, R. D.

DEATHS

See also Memoriam, In

Allan, Gordon Wesley — 43

Amos, Joseph Elmer — 171

Anderson, John Lorne — 667

Ante, Irvin Henry — 667

Ayre, Howard George McWilliam — 459

Boudreau, Dismas — 105

Brock, Burton William — 396

Calkin, Victor Clyde — 105

Campbell, David Sidney — 621

Campbell, James Erskine — 566

Casgrain, Charles Edmour — 286

Casselman, Kenneth Burritt — 346

Cation, James Murray — 43

Chapelaine, Jean-Marie — 43

Charbonneau, J. A. — 621

Chaussé, Ernest — 566

Christie, Robert Spencer — 171

Claman, Ben Hurd — 346

Corrigan, James Ernest — 667

Croft, L. H. — 105

Deans, William James Martin — 621

Decarie, J. W. Noël — 536

Decker, Robert Seneca — 667

Denenberg, Benjamin — 621

Elliot, Cyril Augustus — 667

Fisher, Edward MacKenzie — 346

French, Felix Andrew — 346

Gagnon, Thomas Donald — 459

Gladu, Victor — 510

Gourlie, Harold Earle — 396

Grady, Thomas Percy — 510

Graham, Frederick Roy — 105

Granovsky, Tevia Leib (Theodore) — 621

Grant, Edmund A. — 621

Guimond, Thomas — 566

Gunning, William Nelson — 621

Harvie, Dalton Clark — 105

Haverstock, Albert Borden — 621

Hilliard, James Arthur — 621

Holden, Gordon Willis — 396

Hooley, Michael Joseph — 43

Hutchison, George Orrin — 510

Jones, Raymond C. — 566

Lacasse, J. Aristide — 171

Lamoureux, Jacques — 286

Layng, Richard Holmes — 105

Layton, Lloyd Brown — 286

LeBlanc, Georges Omer — 667

Lessard, M. Léonce — 43

- Lipsey, Clarence Howard—43
 MacLean, John David—621
 Mahoney, Carl Joseph—43
 McClintock, Edward Ruel—286
 McGahey, Celestin Thomas—171
 Miller, Alan Aubrey—566
 Monat, Massue—566
 Moore, Charles H.—286
 Murray, Thomas Ross—667
 Noonan, Ralph Leo—171
 O'Brien, Garnet Wolesley—459
 Paul, Jack Lionel—105
 Ratner, Michael—346
 Richardson, Almond Keith—667
 Rose, Ross Shibley—621
 Sanders, W. J.—566
 Sarrazin, René—286
 Schwartz, Hyman Herbert—459
 Schwetz, William Stephen—105
 Scott, William Hudson—667
 Shortreed, Roy Dawson—171
 Shuttleworth, Robert Fred—43
 Smith, Franklin Paul Ronald—459
 Smith, Walter James—459
 Thompson, Henry Arthur—397
 Turcotte, Joseph-Alfred—171
 Wark, Albert Edward—171
 Watchler, Wesley R.—346
 Wellington, Charles William—566
 Widdowson, Reuben—43
 Winn, Roy Osborne—397
 Yoerger, Wilfred George—286
- DEFENSIVE MECHANISMS**
ORAL
 Mills, W. H.—Mechanisms of antimicrobial defence—205
- DEGLUTITION**
 Garliner, Daniel — Effects of unrecognized abnormal swallowing—301
- DELAQUIS, FERNANDE M., WALKER and CHATWIN** — See Chatwin, J. V. P.
- DEMIRJIAN, ARTO** — Cranio-maxillofacial and somatic growth and oral health in French Canadian children — 79
- DENTIFRICES**
FLUORIDE
 Gish, C. W. and Muhler, J. C. — Effectiveness of a stannous fluoride-calcium pyrophosphate dentifrice on dental caries in children whose teeth calcified in a natural fluoride area — 35 (Abstract)
 Horowitz, H. S. and Thompson, Mary B. — Evaluation of a stannous fluoride dentifrice for use in dental public health programs: 3. Supplementary findings — 604 (Abstract)
 Scola, F. T. and Ostrom, C. A. — Clinical evaluation of stannous fluoride when used as a constituent of a compatible prophylactic paste, as a topical solution, and in a dentifrice in naval personnel — 34 (Abstract)
- DENTINE**
SENSITIVE
 Schwartz, Joseph — The use of corticosteroids in reducing hypersensitivity in operative dentistry — 138 (Abstract)
- DENTISTRY**
IN FRANCE
 Dentistry in France—501
- INTERNATIONAL RELATIONSHIPS**
 Chaves, Mario M. — The FDI and the World Health Organization—646
 Keiser-Nielsen, S.—Forensic dentistry and the FDI — 407
 Leatherman, Gerald — Membership in FDI: what it means — 352
 Paffenbarger, G. C. — Role of the FDI in international specifications for dental materials and devices—551
 Ross, W. Stewart — The story of the Fédération Dentaire Internationale—503
- DENTISTS**
PERSONALITY
 Raginsky, Bernard B. — Some aspects of psychology applied to dentistry — 73
 Vosburg, Frederic — Behavioural problems in dental practice—539
- DENTURE BASES**
RESINS
 Stafford, G. D. and Smith, D. C. — Polycarbonates: a preliminary report on the use of polycarbonates as a denture base material — 217 (Abstract)
- DENTURES**
 Collett, H. A. — Motivation: a factor in denture treatment — 138 (Abstract)
- COMPLETE**
 Krajicek, D. D. — Duplicating nature: a realistic guide to aesthetic dentures—128
 Silverman, M. M. — The whistle and swish sound in denture patients—97 (Abstract)
- LINERS**
 Tucker, K. M. — Relining complete dentures with the use of a functional impression — 34 (Abstract)
- PARTIAL**
 Silverman, M. M. — The whistle and swish sound in denture patients — 97 (Abstract)
- DIAGNOSIS**
ORAL
 Kawamura, Yojiro — Dental significance of four oral physiological mechanisms—582
 DODDS, T. C. and SWAIN — See Swain, R. H. A.
 DOKU, H. C. and MALONEY — See Maloney, P. L.
 DOWSON, JOHN and GARBER, F. N. — A chair-side manual of clinical endodontics — 460 (Book Review)
- DRUGS**
 Freedman, G. L., Hooley, J. R. and Petersen, W. M. — Extrapyramidal manifestations during drug therapy with phenothiazine derivatives — 18
 Gardner, A. F. — Clinical testing of oral pharmacological agents — 29
 Simard-Savoie, S. — Controlled evaluation of analgesics — 137 (Abstract)
 Simard-Savoie, Solange — Clinical evaluation of the analgesic activity of trimeprazine, codeine and a placebo on postoperative and periodontic pain: 1. Experimental protocol — 118
- DRUMMOND-JACKSON, S. L., ed.** Intravenous anaesthesia. Ed. 3 — 513 (Book Review)
- DYKEMA, R. A., JOHNSTON and MUMFORD** — See Johnston, J. F.
- DYSPLASIA**
OSSEOUS
 Morgan, G. A. and Morgan, P. R. — Periapical fibro-osteo-cementoma — 123

E

ECONOMICS

DENTAL

- Campbell, J. Menzies — Evading dentists' bills — 543
 Hamilton, A. I. — Private versus public enterprise in dentistry: an economic analysis — 96 (Abstract)
 McCormick, C. H. — Dentists' suggestions for improving dental care in rural Manitoba — 532
 Toward the cashless and chequeless society — 573 (Editorial)
- DENTAL — taxes**
 Taxes on dental items — 549

EDITORIALS

- A duty for all dentists—461
 A provincial prerogative?—291
 A stronger CDA costs seven more cents a day — 233
 An honour for London—628
 Britain tackles the foot and pound disease—627
 Checks and balances—292
 In search of understanding—55
 Motivation of patients—58
 Mouth detectives—177
 Ottawa, too, must share . . .—515
 Student members—349
 The 1969 budget—405
 The human saga—1
 Toward the cashless and chequeless society—573
 Where the mountains dip to the sea—115

EDUCATION, Dental

- A duty for all dentists—461 (Editorial)
 An honour for London—628 (Editorial)
 Linn, E. L. — Work objectives and skills associated with high school students' interest in dentistry — 321
 McLean, J. D.—Record of achievement—465
 Ottawa, too, must share . . .—515 (Editorial)

EDUCATION OF PUBLIC

- Collett, H. A. — Motivation: a factor in denture treatment — 138 (Abstract)
 LaVere, A. M. — Denture education for edentulous patients — 34 (Abstract)
 Manitoba puts 'teeth' into health education — 423
 Motivation of patients—58 (Editorial)
 Robinson, Barbara A., Mobley, Eugenia L. and Pointer, Martha B. — Is dental health education the answer? — 34 (Abstract)

ENDOCRINE GLANDS

THERAPY

- Schwartz, Joseph — The use of corticosteroids in reducing hypersensitivity in operative dentistry — 138 (Abstract)

ENDOCRINE GLANDS AND HORMONES

- Chapnick, Paul, Matchett, R. W. and Baker, G. I. — Hyperparathyroidism: review and case report — 361
 ENNIS, L. M., BERRY, H. M. and PHILLIPS, J. E. — Dental roentgenology. Ed. 6 — 231 (Book Review)

EQUIPMENT, Dental

- Taxes on dental items—549

MOBILE

- Gray, Alan S. — Portable equipment for 'sit-down-lie-down' dentistry — 90

EXTRACTION

POSTOPERATIVE COMPLICATIONS AND CARE

- Galloway, C. R., Hinds, E. C. and Reid, Raymond — Clinical and laboratory evaluation of streptokinase-streptodornase in oral surgery — 138 (Abstract)
 Simpson, W. J. and Strelloff, M. G. — Post-extraction complications in haemophilia: report of case and discussion—636

F

- FEBRES-CORDERO, F. Origenes de la odontologia (Origins of dentistry) — 51 (Book Review)

FEDERATION DENTAIRE INTERNATIONALE

- Chaves, Mario M. — The FDI and the World Health Organization—646
 Keiser-Nielsen, S. — Forensic dentistry and the FDI—407

- Leatherman, Gerald — Membership in FDI: what it means — 352

- Paffenbarger, G. C. — Role of the FDI in international specifications for dental materials and devices — 551

- Pedersen, P. O. — The FDI Dental Lexicon — 606

- Ross, W. Stewart — The story of the Fédération Dentaire Internationale—503

FILLINGS AND FILLING MATERIALS

- Scott, W. R. and Roydhouse, R. H. — Clinical use of a composite restorative — 469

- FINN, S. B. and JAMISON, H. C. — The effect of a dicalcium phosphate chewing gum on caries incidence in children: 30 month results — 218 (Abstract)

FISTULA

- Wolch, Isadore and Ross, Arthur — A case of a misleading fistula—214

FORENSIC DENTISTRY

- Keiser-Nielsen, S. — Forensic dentistry and the FDI—407

FRACTURES

JAWS

- Smylski, P. T. and Hurd, G. K. — Surgical management of non-union of a fractured mandible: report of case — 577

- FREEDMAN, G. L., HOOLEY, J. R. and FUNK, E. C. — Unusual radiographic appearance of a probable incisive canal cyst — 317

- FREEDMAN, G. L., HOOLEY, J. R. and PETERSEN, W. M. — Extrapyramidal manifestations during drug therapy with phenothiazine derivatives — 18

- FRISCH, JOE, JONES, R. A., SHELL, D. D. and LISTER, R. L. — Occlusal adjustment technique in surgical prognathism procedures — 217 (Abstract)

FUNGI AND FUNGOUS DISEASES

- Kaloyannides, T. M. — Oral moniliasis in the newborn — 496

- FUNK, E. C., FREEDMAN and HOOLEY — See Freedman, G. L.

G

- GALLAGHER, W. N. — Dental roentgenology review — 624 (Book Review)

- GALLOWAY, C. R., HINDS, E. C. and REID, RAYMOND — Clinical and laboratory evaluation of streptokinase-streptodornase in oral surgery — 138 (Abstract)

- GARBER, F. N. and DOWSON — See Dowson, John

- GARDNER, A. F. — Clinical testing of oral pharmacological agents — 29

- GARLINER, DANIEL — Effects of unrecognized abnormal swallowing—301

- GAUNT, W. A., OSBORN, J. W. and TEN CATE, A. R. — Advances in dental histology — 174 (Book Review)

- GEDALIA, I. — Fluoride tablets — 605 (Abstract)

- GEIGER, ARNOLD and HIRSCHFELD — See Hirschfeld, Leonard

- GIBB, G. H. and ATTALLA—See Attalla, M. N.

- GILBERT, A. G. — Dentigerous cyst of the maxillary antrum: case report — 132

- GILMORE, H. W. — Operative dentistry — 513 (Book Review)

- GISH, C. W. and MUHLER, J. C. — Effectiveness of a stannous fluoride-calcium pyrophosphate dentifrice on dental caries in children whose teeth calcified in a natural fluoride area — 35 (Abstract)

- GOLDNER, M. and PASZTI — See Paszti, Michael

- GOLDSTEIN, P. M. — Retention pins are friction locked without use of cement — 35 (Abstract)

- GORDON, EVELYN W. and CUSSLER — See Cussler, Margaret

- GRAY, ALAN S. — Dental birthday cards for three year old children — 201

- Portable equipment for 'sit-down-lie-down dentistry—90

- GURI, C. D., STARE, BERNSTEIN, SADOWSKY and HEGSTED — See Bernstein, D. S.

- GYDE, M. C. and JARJOUR, E. G. — Oro-antral fistula treated with lincomycin: report of case — 536

H

HAEMORRHAGE

CONTROL

- Lucas, O. N. — Effect of injections of thrombin on blood coagulation and local haemostasis in rats — 378

- Simpson, W. J. and Strelloff, M. G. — Post-extraction complications in haemophilia: report of case and discussion—636

- Sowray, J. H. — A two-part haemorrhage-control plate — 97 (Abstract)

- HAMILTON, A. I. — Private versus public enterprise in dentistry: an economic analysis — 96 (Abstract)

- HAMILTON, MARGARET C., ISRAEL and WALTER — See Walter, J. B.

- HANN, H. J. — Optimum fluoride levels for community water supplies — 250

- HARROP, T. J.—The challenge—95

- HARROP, T. J. and MACKAY, B. — Electron microscopic observations on myoepithelial cells and secretory nerves in rat salivary glands — 481

- HARTLAND, JOHN — Medical and dental hypnosis and its clinical applications — 173 (Book Review)

- HARYETT, R. D., SANDILANDS, M. and DAVIDSON, P. O. — Relative effectiveness of various methods of arresting thumbsucking — 5

- HAYDEN, JESS, JR. and JORGENSEN — See Jorgensen, N. B.

HEALTH

DENTAL

- Demirjian, Arto — Cranio-maxillofacial and somatic growth and oral health in French Canadian children — 79

- HEGSTED, D. M., GURI, STARE, BERNSTEIN and SADOWSKY — See Bernstein, D. S.

- HINDS, E. C., REID and GALLOWAY — See Galloway, C. R.

- HIRSCHFELD, LEONARD and GEIGER, ARNOLD — Minor tooth movement in general practice. Ed. 2 — 52 (Book Review)

- HIRSCHFELD, L. S., MORRIS, MOSKOW and WASSERMEN — See Moskow, B.S.
- HISTORY**
- DENTAL**
- Bourne, C. C. — Eleazar Parmly: Montreal schoolboy and dental student — 385
- HJORTING-HANSEN, ERIK and HUSTED — See Husted, Erik
- HOLLANDER, L. N. — Modern dental practice: concepts and procedures — 53 (Book Review)
- HOOLEY, J. R., FUNK and FREEDMAN — See Freedman, G. L.
- HOOLEY, J. R., PETERSEN and FREEDMAN — See Freedman, G. L.
- HOROWITZ, H. S. and THOMPSON, MARY B. — Evaluation of a stannous fluoride dentifrice for use in dental public health programs: 3. Supplementary findings — 604 (Abstract)
- HUGHES, F. NORMAN and ROTENBERG, G. N. — Compendium of pharmaceuticals and specialties (Canada) 1968, Ed. 4 — 570 (Book Review)
- HURD, G. K. and SMYLSKI — See Smylski, P. T.
- HUSTED, ERIK and HJORTING-HANSEN, ERIK, ed. — Oral surgery: transactions, 2nd Congress of the International Association of Oral Surgeons — 50 (Book Review)
- HYMAN, G. A., McLEAN, KUTSCHER, KUTSCHER and ZEGARELLI — See Kutscher, A. H.

I

- IDENTIFICATION BY MEANS OF TEETH**
- Keiser-Nielsen, S. — Forensic dentistry and the FDI — 407
- INCOME TAX**
- Federal income tax returns by dentists—650
- INFLAMMATION**
- Galloway, C. R., Hinds, E. C. and Reid, Raymond — Clinical and laboratory evaluation of streptokinase-streptodornase in oral surgery — 138 (Abstract)
- INLAYS**
- PINS**
- Möllersten, Lennart — The Pontostructor paralleling instrument in restorative dentistry — 67
- ISRAEL, M. S., WALTER and HAMILTON — See Walter, J. B.

J

- JAMISON, H. C. and FINN — See Finn, S. B.
- JARJOUR, E. G. and GYDE—See Gyde, M. C.
- JAWS**
- DEVELOPMENT**
- Demirjian, Arto — Cranio-maxillofacial and somatic growth and oral health in French Canadian children — 79
- JENKINS, G. N. — The mechanism of action of fluoride in reducing caries incidence — 605 (Abstract)
- JOHNSTON, J. F., MUMFORD, GEORGE and DYKEMA, R. W. — Modern practice in dental ceramics — 52 (Book Review)
- JONES, R. A., SHELL, LISTER and FRISCH — See Frisch, Joe
- JORGENSEN, N. B. and HAYDEN, JESS, JR. — Premedication, local and general anesthesia in dentistry — 113 (Book Review)
- JOURNALISM, Dental**
- In search of understanding—55 (Editorial)

K

- KALOYANNIDES, T. M. — Oral moniliasis in the newborn — 496
- KAWAMURA, YOJIRO — Dental significance of four oral physiological mechanisms — 582

- KAY, L. W. and KILLEY—See Killey, H. C.
- KEISER-NIELSEN, S. — Forensic dentistry and the FDI — 407
- KILLEY, H. C. — Fractures of the mandible — 232 (Book Review)
- KILLEY, H. C. and KAY, L. W. — Benign cystic lesions of the jaws: their diagnosis and treatment — 52 (Book Review)
- KORNFELD, MAX — Mouth rehabilitation: clinical and laboratory procedures — 567 (Book Review)
- KRAJICEK, D. D. — Duplicating nature: a realistic guide to aesthetic dentures — 128
- KUTSCHER, A. H., ZEGARELLI, E. V., HYMAN, G. A., McLEAN, PATRICIA and KUTSCHER, HELENE W. — Pharmacology for the dental patient — 51 (Book Review)
- KUTSCHER, HELENE W., KUTSCHER, ZEGARELLI, HYMAN and McLEAN — See Kutscher, A. H.

L

- LaVERE, A. M. — Denture education for edentulous patients — 34 (Abstract)
- LEATHERMAN, GERALD — Membership in FDI: what it means — 352
- LINN, E. L. — Work objectives and skills associated with high school students' interest in dentistry — 321
- LISTER, R. L., FRISCH, JONES and SHELL — See Frisch, Joe
- LUCAS, O. N. — Effect of injections of thrombin on blood coagulation and local haemostasis in rats — 378
- LURA, H. E. — The non-acid complexing theory of dental caries — 568 (Book Review)

M

- MACKAY, B. and HARROP—See Harrop, T. J.
- MACNEIL, W. H.—Differences between anilide and ester local anaesthetic agents—498
- MALOCCLUSION**
- Rennert, M. D. — The relationship between delayed physical maturity and malocclusion — 492
- HABITS AS FACTORS**
- Haryett, R. D., Sandilands, M. and Davidson, P. O. — Relative effectiveness of various methods of arresting thumbsucking — 5
- STATISTICS**
- McPhail, C. W. B. — Epidemiology and its application to dental disease — 476
- STATISTICS in French Polynesia**
- Baume, L. J. — Dentofacial anomalies in 11,318 children of French Polynesia—518
- MALONEY, P. L. and DOKU, H. C. — Maxillary sinusitis of odontogenic origin — 591
- MANDIBLE AND MAXILLA**
- DISEASES**
- Banerjee, S. C. — Metastasis to the mandible — 97 (Abstract)
- Smylski, P. T. and Hurd, G. K. — Osteomyelitis of the mandible in an alcoholic patient: case report—237
- FRACTURES**
- Smylski, P. T. and Hurd, G. K. — Surgical management of non-union of a fractured mandible: report of case—577
- RESECTION**
- Charest, André — New method for surgical correction of maxillary protrusion—630
- Frisch, Joe, Jones, R. A., Shell, D. D. and Lister, R. L. — Occlusal adjustment technique in surgical prognathism procedures — 217 (Abstract)
- MARKOVITCH, EUGENE — The history and development of general anaesthesia in dentistry — 305
- MATCHETT, R. W., BAKER and CHAPNICK — See Chapnick, Paul
- MATERIA MEDICA AND THERAPEUTICS**
- Freedman, G. L., Hooley, J. R. and Petersen, W.

- M. — Extraparadental manifestations during drug therapy with phenothiazine derivatives — 18
- Simard-Savoie, Solange — Clinical evaluation of the analgesic activity of trimeprazine, codeine and a placebo on postoperative and periodontic pain: 1. Experimental protocol — 118
- MAXILLOFACIAL INJURIES**
- Smylski, P. T. and Hurd, G. K. — Surgical management of non-union of a fractured mandible: report of case — 577
- McCARNEY, F. M. — Emergencies in dental practice — 175 (Book Review)
- McCORMICK, C. H. — Dentists' suggestions for improving dental care in rural Manitoba — 532
- McLEAN, J. D. — Record of achievement — 465
- McLEAN, PATRICIA, KUTSCHER, KUTSCHER, ZEGARELLI and HYMAN — See Kutscher, A. H.
- McPHAIL, C. W. B. — Epidemiology and its application to dental disease — 476
- MEDICINE**
- Belliveau, N. J. — Medical manpower problems: today and tomorrow — 244
- MEMORIAM, IN**
- See also Deaths
- Derrick, F. Douglas — 106
- French, Felix A. — 397
- Grant, Edmund A. — 667
- Ridge, John M. — 106
- MENCZER, L. F. — The open-ended metal column for the dental x-ray machine — 35 (Abstract)
- MILES, A. E. W., ed. — Structural and chemical organization of teeth — 511 (Book Review)
- MILLS, W. H. — Mechanisms of antimicrobial defence — 205
- Review of surgical techniques for the treatment of periodontic deformities — 367
- MOBLEY, EUGENIA L., POINTER and ROBINSON — See Robinson, Barbara A.
- MOLLERSTEN, LENNART — The Pontostructure paralleling instrument in restorative dentistry — 67
- MONILIA**
- Kaloyannides, T. M. — Oral moniliasis in the newborn — 496
- MORGAN, G. A. and MORGAN, P. R. — Periapical fibro-osteo-cementoma — 123
- MORGAN, P. R. and MORGAN — See Morgan, G. A.
- MORRIS, M. L., MOSKOW, WASSERMAN and HIRSCHFELD — See Moskow, B. H.
- MOSKOW, B. S., WASSERMAN, B. H., HIRSCHFELD, L. S. and MORRIS, M. L. — Repair of periodontal tissues following acute localized osteomyelitis — 35 (Abstract)
- MUHLEMANN, H. R. — Fluoridated domestic salt: a discussion of dosage — 604 (Abstract)
- MUHLER, J. C. and GISH — See Gish, C. W.
- MUMFORD, GEORGE, DYKEMA and JOHNSTON — See Johnston, J. F.

N

NATIONAL HEALTH INSURANCE

- Hamilton, A. I. — Private versus public enterprise in dentistry: an economic analysis — 96 (Abstract)

IN CANADA

- Belliveau, N. J. — Medical manpower problems: today and tomorrow — 244

NERVES

ANATOMY

- Harrop, T. J. and Mackay, B. — Electron microscopic observations on myoepithelial cells and secretory nerves in rat salivary glands — 481
- NEWBY, J. D. — Dental radiographs of interest — 136
- NICHOLLS, E. — Endodontics — 175 (Book Review)

O

OCCCLUSION

RESTORATION TO NORMAL

- Frisch, Joe, Jones, R. A., Shell, D. D. and List-

- er, R. L. — Occlusal adjustment technique in surgical prognathism procedures — 217 (Abstract)

- OLIVER, H. T. — Orthodontic treatment of the newborn with clefts of the lip and palate — 196

OPERATIVE DENTISTRY

- Roydhouse, R. H. — Penetration around the margins of restorations: 2. Nature and significance — 21

ORAL HYGIENE

- Powers, G. K., Tussing, G. J. and Bradley, R. E. — A comparison of effectiveness in interproximal plaque removal of an electric toothbrush and a conventional hand toothbrush — 97 (Abstract)

ORAL SURGERY

- Galloway, C. R., Hinds, E. C. and Reid, Raymond — Clinical and laboratory evaluation of streptokinase-streptodornase in oral surgery — 138 (Abstract)
- Gyde, M. C. and Jarjour, E. G. — Oro-antral fistula treated with lincomycin: report of case — 536

ORTHODONTICS

- Garliner, Daniel — Effects of unrecognized abnormal swallowing — 301
- Oliver, H. T. — Orthodontic treatment of the newborn with clefts of the lip and palate — 196
- Rennert, M. D. — The relationship between delayed physical maturity and malocclusion — 492
- OSBORN, J. W., TEN CATE and GAUNT — See Gaunt, W. A.

OSTEOMYELITIS

- Moskow, B. S., Wasserman, B. H., Hirschfeld, L. S. and Morris, M. L. — Repair of periodontal tissues following acute localized osteomyelitis — 35 (Abstract)
- Smylski, P. T. and Hurd, G. K. — Osteomyelitis of the mandible in an alcoholic patient: case report — 237

- OSTROM, C. A. and SCOLA — See Scola, F. T.

P

PAEDODONTICS

APPOINTMENTS DURING SCHOOL HOURS

- Gray, Alan S. — Dental birthday cards for three year old children — 201

- PAFFENBARGER, G. C. — Role of the FDI in international specifications for dental materials and devices — 551

- PARNELL, A. G. — Primordial cyst of the jaw: case report — 61

PAROTITIS

- Trester, P. H. — The development and use of contrast media in sialography — 210

PARTIAL DENTURES

- Silverman, M. M. — The whistle and swish sound in denture patients — 97 (Abstract)

- PASZTI, MICHAEL and GOLDNER, M. — Bacteriological examination of swab test cultures for caries activity — 413

- PEDERSEN, P. O. — The FDI Dental Lexicon — 606

PERIAPICAL INFECTION

- Wolch, Isadore and Ross, Arthur — A case of a misleading fistula — 214

PERIODONTIC DISEASE

STATISTICS

- McPhail, C. W. B. — Epidemiology and its application to dental disease — 476

TREATMENT — surgical

- Mills, W. H. — Review of surgical techniques for the treatment of periodontic deformities — 367

PERIODONTIC TISSUE

- Moskow, B. S., Wasserman, B. H., Hirschfeld, L. S. and Morris, M. L. — Repair of periodontal tissues following acute localized osteomyelitis — 35 (Abstract)

- PETERSEN, W. M., FREEDMAN and HOOLEY — See Freedman, G. L.

- PETERSON, SHAILER — Clinical dental hygiene, Ed. 3 — 568 (Book Review)

- PETERSON, SHAILER, ed. — The dentist and his assistant, Ed. 2 — 172 (Book Review)

- PETERSON, SHAILER and WINNETT, W. B. — Review and test manual for dental assistants — 514 (Book Review)
- PEYTON, F. A. — Restorative dental materials. Ed. 3 — 622 (Book Review)
- PHENOTHIAZINES
Freedman, G. L., Hooley, J. R. and Petersen, W. M. — Extrapyramidal manifestations during drug therapy with phenothiazine derivatives — 18
- Simard-Savoie, Solange — Clinical evaluation of the analgesic activity of trimeprazine, codeine and a placebo on postoperative and periodontic pain: 1. Experimental protocol — 118
- PHILLIPS, J. E., ENNIS and BERRY — See Ennis, L. M.
- PHILLIPS, R. W. and SKINNER — See Skinner, E. W.
- PINS
Goldstein, P. M. — Retention pins are friction locked without use of cement — 35 (Abstract)
- POINTER, MARTHA B., ROBINSON and MOBLEY — See Robinson, Barbara A.
- POWERS, G. K., TUSSING, G. J. and BRADLEY, R. E. — A comparison of effectiveness in interproximal plaque removal of an electric toothbrush and a conventional hand toothbrush — 97 (Abstract)
- POWNALL, K. F., BROWN and YEO — See Brown, H. K.
- POWNALL, K. F., YEO and BROWN — See Yeo, D. J.
- PRACTICE, Dental
Campbell, J. Menzies — Evading dentists' bills — 543
- Hamilton, A. I. — Private versus public enterprise in dentistry: an economic analysis — 96 (Abstract)
- McCormick, C. H. — Dentists' suggestions for improving dental care in rural Manitoba — 532
- Motivation of patients — 58 (Editorial)
- Taxes on dental items—549
- Toward the cashless and chequeless society — 573 (Editorial)
- Yeo, D. J., Brown, H. K. and Pownall, K. F. — Public health and the evolution of dental practice — 489
- APPOINTMENTS
Chatwin, J. V. P., Delaquis, Fernande M. and Walker, C. B. — Accuracy of recall of dental care received during the preceding year — 409
- Gray, Alan S. — Dental birthday cards for three year old children — 201
- PROGNATHISM
Charest, André — New method for surgical correction of maxillary protrusion—630
- Frisch, Joe, Jones, R. A., Shell, D. D. and Lister, R. L. — Occlusal adjustment technique in surgical prognathism procedures — 217 (Abstract)
- PROSTHODONTICS
Beck, H. O. — Jaw registrations and articulators — 34 (Abstract)
- Krajicek, D. D. — Duplicating nature: a realistic guide to aesthetic dentures — 128
- LaVere, A. M. — Denture education for edentulous patients — 34 (Abstract)
- Silverman, M. M. — The whistle and swish sound in denture patients — 97 (Abstract)
- Tucker, K. M. — Relining complete dentures with the use of a functional impression — 34 (Abstract)
- PSYCHOLOGY
DENTAL
Raginsky, Bernard B. — Some aspects of psychology applied to dentistry — 73
- Vosburg, Frederic — Behavioural problems in dental practice — 539
- PSYCHOSOMATIC MEDICINE AND DENTISTRY
Haryett, R. D., Sandilands, M. and Davidson, P. O. — Relative effectiveness of various methods of arresting thumbsucking — 5
- Raginsky, Bernard B. — Some aspects of psychology applied to dentistry — 73
- Vosburg, Frederic — Behavioural problems in dental practice — 539
- PUBLIC HEALTH
Brown, H. K., Yeo, D. J. and Pownall, K. F. — Dentistry's participation in public health — 312
- Yeo, D. J., Brown, H. K. and Pownall, K. F. — Public health and the evolution of dental practice — 489
- PUBLIC HEALTH PROGRAMS
DENTAL
Gray, Alan S. — Dental birthday cards for three year old children — 201
- PULP
CAPPING
Attalla, M. N. — The role of dental pulp fluid in healing small surgical pulp exposures—641
- CONSERVATION
Attalla, M. N. — The role of dental pulp fluid in healing small surgical pulp exposures—641
- PATHOLOGY
Wolch, Isadore and Ross, Arthur — A case of a misleading fistula — 214

R

RADIOLOGY

Newby, J. D. — Dental radiographs of interest — 136

TECHNIQUE

Menczer, L. F. — The open-ended metal column for the dental x-ray machine — 35 (Abstract)

RAGINSKY, BERNARD B. — Some aspects of psychology applied to dentistry — 73

REID, RAYMOND, GALLOWAY and HINDS — See Galloway, C. R.

RENNERT, M. D. — The relationship between delayed physical maturity and malocclusion — 492

RESINS

Scott, W. R. and Roydhouse, R. H. — Clinical use of a composite restorative — 469

Sykora, O. P. — Direct veneers of a thermoplastic crown and bridge veneering material — 357

RESTREPO, DARIO — Salt fluoridation: an alternate measure to water fluoridation — 604 (Abstract)

RICHARDSON, A. S. — Parental participation in the administration of fluoride supplements — 604 (Abstract)

RITZ, ANGELINE G., AVERILL and AVERILL — See Averill, H. M.

ROBINSON, BARBARA A., MOBLEY, EUGENIA L. and POINTER, MARTHA B. — Is dental health education the answer? — 34 (Abstract)

ROOT CANAL TREATMENT

STERILIZATION

Attalla, M. N. — Effect of beechwood creosote and chloramine on periapical tissue of dogs — 190

ROSS, ARTHUR and WOLCH — See Wolch, Isadore

ROSS, W. STEWART — The story of the Fédération Dentaire Internationale — 503

ROTENBERG, G. N. and HUGHES — See Hughes, F. Norman

ROYDHOUSE, R. H. — Penetration around the margins of restorations: 2. Nature and significance — 21

ROYDHOUSE, R. H. and SCOTT — See Scott, W. R.

S

SADOWSKY, NORMAN, HEGSTED, GURI, STARE and BERNSTEIN — See Bernstein, D. S.

SALIVARY GLANDS

Harrop, T. J. and Mackay, B. — Electron microscopic observations on myoepithelial cells and secretory nerves in rat salivary glands — 481

DISEASES

Carlin, R. T. and Seldin, Reubin — Sialography: a useful aid in diagnosing parotid tumours — 217 (Abstract)

Trester, P. H. — The development and use of contrast media in sialography — 210

SANDILANDS, M., DAVIDSON and HARYETT — See Haryett, R. D.

SARNER, HARVEY — The business management of dental practice — 231 (Book Review)

SCHWARTZ, JOSEPH — The use of corticosteroids in reducing hypersensitivity in operative dentistry — 138 (Abstract)

- SCOLA, F. T. and OSTROM, C. A. — Clinical evaluation of stannous fluoride when used as a constituent of a compatible prophylactic paste, as a topical solution, and in a dentifrice in naval personnel — 34 (Abstract)
- SCOTT, J. H. — The essentials of oral anatomy — 232 (Book Review)
- SCOTT, W. R. and ROYDHOUSE, R. H. — Clinical use of a composite restorative — 469
- SELDIN, REUBIN and CARLIN—See Carlin, R. T.
- SHORE, MIRIAM F. and SHORE—See Shore, N. A.
- SHORE, N. A. and SHORE, MIRIAM F. — How to test and hire for the professional office — 622 (Book Review)
- SHELL, D. D., LISTER, FRISCH and JONES — See Frisch, Joe
- SIALOGRAPHY
See Salivary Glands—diseases
- SILVERMAN, M. M. — The whistle and swish sound in denture patients — 97 (Abstract)
- SIMARD-SAVOIE, S. — Controlled evaluation of analgesics — 137 (Abstract)
- SIMARD-SAVOIE, SOLANGE — Clinical evaluation of the analgesic activity of trimeprazine, codeine and a placebo on postoperative and periodontic pain: 1. Experimental protocol — 118
- SIMPSON, W. J. and STRELIOFF, M. G. — Post-extraction complications in haemophilia: report of case and discussion—636
- SINUSES OF FACE
Maloney, P. L. and Doku, H. C. — Maxillary sinusitis of odontogenic origin — 591
- SKINNER, E. W. and PHILLIPS, R. W. — The science of dental materials. Ed. 6 — 570 (Book Review)
- SMITH, D. C. and STAFFORD — See Stafford, G. D.
- SMYLSKI, P. T. and HURD, G. K. — Osteomyelitis of the mandible in an alcoholic patient: case report — 237
Surgical management of non-union of a fractured mandible: report of case — 577
- SOCIALIZED DENTISTRY
Hamilton, A. I. — Private versus public enterprise in dentistry: an economic analysis — 96 (Abstract)
- SOWRAY, J. H. — A two-part haemorrhage-control plate — 97 (Abstract)
- SPECIALISTS
A provincial prerogative? — 291 (Editorial)
- SPERBER, G. H. — Alberta Faculty receives cast of fossil mandible of *Homo habilis* — 32
- STAFFORD, G. D. and SMITH, D. C. — Polycarbonates: a preliminary report on the use of polycarbonates as a denture base material — 217 (Abstract)
- STARE, F. J., BERNSTEIN, SADOWSKY, HEGSTED and GURI — See Bernstein, D. S.
- STATISTICS
DENTAL DEFECTS
Baume, L. J. — Dentofacial anomalies in 11,318 children of French Polynesia — 518
McPhail, C. W. B. — Epidemiology and its application to dental disease — 476
- STEELE, PAULINE F. — Dimensions of dental hygiene — 111 (Book Review)
- STOLL, FRANCES A. and CATHERMAN, JOAN L. — Dental health education — 50 (Book Review)
- STORER, ROY and ANDERSON — See Anderson, J. N.
- STOREY, A. T. — Sensory functions of the temporomandibular joint — 294
- STRELIOFF, M. G. and SIMPSON — See Simpson, W. J.
- SWAIN, R. H. A. and DODDS, T. C. — Clinical virology — 511 (Book Review)
- SYKORA, O. P. — Direct veneers of a thermoplastic crown and bridge veneering material — 357

T

- TEETH, Artificial
FORM AND ARRANGEMENT
Krajicek, D. D.—Duplicating nature: a realistic guide to aesthetic dentures — 128
- TEMPOROMANDIBULAR JOINT
Storey, A. T. — Sensory functions of the temporomandibular joint — 294

- TEN CATE, A. R., GAUNT and OSBORN — See Gaunt, W. A.
- THOMPSON, MARY B. and HOROWITZ — See Horowitz, H. S.
- THUMBSUCKING
See Malocclusion—habits as factors
- TOOTHBRUSHES AND TOOTHBRUSHING TECHNIQUE
Powers, G. K., Tussing, G. J. and Bradley, R. E. — A comparison of effectiveness in interproximal plaque removal of an electric toothbrush and a conventional hand toothbrush — 97 (Abstract)
- TRESTER, P. H. — The development and use of contrast media in sialography — 210
- TREWEEKE, M. B. — A guide to dental practice — 174 (Book Review)
- TUCKER, K. M. — Relining complete dentures with the use of a functional impression — 34 (Abstract)
- TUMOURS
Carlin, R. T. and Seldin, Reubin — Sialography: a useful aid in diagnosing parotid tumours — 217 (Abstract)
- TUSSING, G. J., BRADLEY and POWERS — See Powers, G. K.

U

- USAF SCHOOL OF AEROSPACE MEDICINE. Dental Sciences Division — Modular casework guidance for dental treatment rooms — 624 (Book Review)
- US DEPARTMENT OF HEALTH EDUCATION AND WELFARE. National Centre for Health Statistics. Vital and Health Statistics. PHS Publication No. 1000, Series 11, No. 23 — Decayed, missing and filled teeth in adults — United States, 1960-1962 — 172 (Book Review)
- National Centre for Health Statistics. Vital and Health Statistics. PHS Publication No. 1000, Series 2, No. 25, 1968 — Orthodontic treatment priority index — 567 (Book Review)
- National Centre for Health Statistics. Vital and Health Statistics. PHS Publication No. 1000, Series 11, No. 27 — Total loss of teeth in adults, United States, 1960-1962 — 569 (Book Review)

V

- VOSBURG, FREDERIC — Behavioural problems in dental practice — 539

W

- WALKER, C. B., CHATWIN and DELAQUIS — See Chatwin, J. V. P.
- WALTER, J. B., HAMILTON, MARGARET C. and ISRAEL, M. S. — Principles of pathology for dental students — 512 (Book Review)
- WANN, W. L. — Amalgam restorations at the minimum mercury content — 35 (Abstract)
- WASSERMAN, B. H., HIRSCHFELD, MORRIS and MOSKOW — See Moskow, B. S.
- WINNETT, W. B. and PETERSON — See Peterson, Shailer
- WOLCH, ISADORE and ROSS, ARTHUR — A case of a misleading fistula — 214
- WOOD, L. B. — A handbook of dental malpractice — 175 (Book Review)
- WORLD HEALTH ORGANIZATION — World directory of dental schools — 174 (Book Review)

Y

- YEO, D. J., BROWN, H. K. and POWNALL, K. F.
— Public health and the evolution of dental
practice — 489
YEO, D. J., POWNALL and BROWN — See Brown,
H. K.

Z

- ZEGARELLI, E. V., HYMAN, McLEAN, KUTSCH-
ER and KUTSCHER — See Kutscher, A. H.
ZIPKIN, I. and BABEAUX — See Babeaux, W. L.

Index annuel

Janvier - Décembre 1968 • Volume 34

A

- ACKERMANN, RENE — Les implants aiguilles —
110 (Analyse)
ADAMS, C. P.—Appareils orthodontiques amovibles
—230 (Analyse)
AMINES PHENOTHIAZINIQUES
Simard-Savoie, Solange—Evaluation clinique des
propriétés analgésiques de la triméprazine, de
la codéine et du placebo sur la douleur post-
chirurgicale et périodontique: 1. Protocole ex-
périmental—118
ANALYSE
Ackermann, René—Les implants aiguilles—110
Adams, C. P.—Appareils orthodontiques amovi-
bles—230
Hirschfeld, Leonard et Geiger, Arnold — Minor
tooth movement in general practice. Ed. 2—110
Jorgensen, N. B. et Hayden, Jess, Jr.—Premedi-
cation, local and general anesthesia in dentis-
try—230
Manné, J.—Psychologie et odontostomatologie—
625
Racadot, J. et Weill, R. — Histologie dentaire:
structure et développement de l'organe den-
taire—110
Sarnier, Harvey — The business management of
dental practice—230
ASSOCIATION DENTAIRE CANADIENNE
Le budget 1969 — 405 (Editorial)
Membres étudiants—350 (Editorial)
Taxes sur l'équipement dentaire—550
Une Association dentaire canadienne plus forte
pour sept cents de plus par jour—234 (Editorial)
CONGRES ANNUEL
Les gouverneurs approuvent une augmentation
de \$25 du subside à l'ADC et acceptent le pro-
gramme pour les enfants—435
Programme préliminaire du congrès national de
l'ADC—139
CONSEIL EXECUTIF
Estimation des services et des besoins fiscaux de
l'ADC, pour les cinq prochaines années—268
ASSURANCE-SANTE MEDICALE
Belliveau, N. J.—Les problèmes de main-d'oeuvre
en médecine aujourd'hui et demain—247

B

- BAUME, L. J. — Principes de l'enquête épidémiolo-
gique sur les anomalies dento-faciales: résultats
obtenus chez 11,318 élèves de la Polynésie fran-
çaise—518
BELLIVEAU, N. J.—Les problèmes de main-d'oeu-
vre en médecine aujourd'hui et demain—247

C

- CHAVES, MARIO M.—La Fédération dentaire inter-
nationale et l'Organisation mondiale de la santé
—646
CLASSIFICATION STATISTIQUE
ANOMALIES DENTO-FACIALES
Baume, L. J. — Principes de l'enquête épidé-
miologique sur les anomalies dento-faciales:
résultats obtenus chez 11,318 élèves de la
Polynésie française—518
CORRESPONDANCE
Durand, Jean-Claude — L'Association profession-
nelle des chirurgiens-dentistes du Québec—464
Park, In Hee — Communication d'une lectrice
coréenne—629

D

- DECES—Voir Deaths dans index anglais
DEMIRJIAN, ARTO—Recherches sur la croissance
cranio-maxillo-faciale et somatique de l'enfant
canadien français—79
DENTISTERIE LEGALE
Keiser-Nielsen, S.—La dentisterie légale—407

E

- ENSEIGNEMENT DENTAIRE
Cours d'appoint—3 (Editorial)
McLean, J. D.—Une réalisation—467
Une responsabilité que tous les dentistes doivent
assumer—462 (Editorial)
EN FRANCE
D'autres "français-canadiens": les chirurgiens-
dentistes—178 (Editorial)
EQUIPEMENT DENTAIRE
PORTATIF
Gray, Alan S.—Équipement portatif moderne—
90
Taxes sur l'équipement dentaire—550
EXERCICE DENTAIRE
Taxes sur l'équipement dentaire—550
Une société sans chèques ni argent?—574 (Edi-
torial)
EN FRANCE
D'autres "français-canadiens": les chirurgiens-
dentistes—178 (Editorial)

F

FEDERATION DENTAIRE INTERNATIONALE

- Chaves, Mario M.—La Fédération dentaire internationale et l'Organisation mondiale de la santé—646
 Keiser-Nielsen, S.—La dentisterie légale—407
 Leatherman, Gerald — Adh  rence    la FDI, sa signification—352
 Paffenbarger, G. C.—Normes internationales pour les mat  riaux et dispositifs dentaires—551
 Pedersen, P. O.—Le lexique dentaire de la F  d  ration dentaire internationale—606
 Ross, W. Stewart — L'histoire de la F  d  ration dentaire internationale—503

G

- GEIGER, ARNOLD et HIRSCHFELD—Voir Hirschfeld, Leonard
 GRAY, ALAN S.—Equipe  ment portatif moderne—90

H

- HAYDEN, JESS, JR. et JORGENSEN — Voir Jorgensen, N.B.
 HIRSCHFELD, LEONARD et GEIGER, ARNOLD—Minor tooth movement in general practice. Ed. 2—110 (Analyse)

I

IDENTIFICATION DENTAIRE

- Keiser-Nielsen, S.—La dentisterie l  gale—407
 IMPOT SUR LE REVENU
 D  claration f  d  rale d'imp  t sur le revenu—653

J

- JORGENSEN, N. B. et HAYDEN, JESS, JR. — Premedication, local and general anesthesia in dentistry—230 (Analyse)
 JOURNALISME
 En qu  te de compr  hension—56 (Editorial)

K

- KEISER-NIELSEN, S.—La dentisterie l  gale—407

L

- LEATHERMAN, GERALD—Adh  rence    la FDI, sa signification—352

M

MALOCCLUSION

EN POLYNESIE FRANCAISE

- Baume, L. J.—Principes de l'enqu  te   pid  miologique sur les anomalies dento-faciales: r  sultats obtenus chez 11,318   l  ves de la Polyn  sie fran  aise—518
 MANNE, J. — Psychologie et odontostomatologie—625 (Analyse)

MATIERE MEDICALE

- Simard-Savoie, S.—Etapes de l'  valuation contr  l  e d'un analg  sique—137 (R  sum  )
 Simard-Savoie, Solange—Evaluation clinique des propri  t  s analg  siques de la trim  prazine, de la cod  ine et du placebo sur la douleur postchirurgicale et p  riodontique: 1. Protocole exp  rimental—118

MAXILLAIRES

DEVELOPPEMENT

- Demirjian, Arto—Recherches sur la croissance cranio-maxillo-faciale et somatique de l'enfant canadien fran  ais—79
 McLEAN, J. D.—Une r  alisation—467
 MEMORIAM, In—Voir Memoriam, In dans index anglais

P

- PAFFENBARGER, G. C.—Normes internationales pour les mat  riaux et dispositifs dentaires—551
 PAGE EDITORIALE
 Cours d'appoint—3
 D'autres "fran  ais-canadiens": les chirurgiens-dentistes—178
 En qu  te de compr  hension—56
 Le budget 1969—405
 Membres   tudiants—350
 Une Association dentaire canadienne plus forte pour sept cents de plus par jour—234
 Une pr  rogative provinciale?—116
 Une responsabilit   que tous les dentistes doivent assumer—462
 Une soci  t   sans ch  ques ni argent?—574
 PEDERSEN, P. O. — Le lexique dentaire de la F  d  ration dentaire internationale—606
 PHARMACOTHERAPIE DENTAIRE
 Simard-Savoie, S.—Etapes de l'  valuation contr  l  e d'un analg  sique—137 (R  sum  )
 Simard-Savoie, Solange—Evaluation clinique des propri  t  s analg  siques de la trim  prazine, de la cod  ine et du placebo sur la douleur postchirurgicale et p  riodontique: 1. Protocole exp  rimental—118
 PROFESSION MEDICALE
 Belliveau, N. J.—Les probl  mes de main-d'oeuvre en m  decine aujourd'hui et demain—247

R

- RACADOT, J. et WEILL, R.—Histologie dentaire: structure et d  veloppement de l'organe dentaire—110 (Analyse)
 ROSS, W. STEWART—L'histoire de la F  d  ration dentaire internationale—503

S

- SARNER, HARVEY—The business management of dental practice—230 (Analyse)
 SCIENCE ECONOMIQUE
 PAR RAPPORT A L'EXERCICE DENTAIRE
 Une soci  t   sans ch  ques ni argent? — 574 (Editorial)
 SIMARD-SAVOIE, S.—Etapes de l'  valuation contr  l  e d'un analg  sique—137 (R  sum  )
 SIMARD-SAVOIE, SOLANGE—Evaluation clinique des propri  t  s analg  siques de la trim  prazine, de la cod  ine et du placebo sur la douleur postchirurgicale et p  riodontique: 1. Protocole exp  rimental—118
 SOCIETES DENTAIRES
 Membres   tudiants—350 (Editorial)
 SPECIALISTES ET SPECIALITES
 Une pr  rogative provinciale?—116

W

- WEILL, R. et RACADOT—Voir Racadot, J.

announcements • avis

Canadian Dental Association

- 1969 **Montreal**, July 9-11
- 1970 **Winnipeg**, July 1-4
- 1971 **Windsor**, Sept. 30-Oct. 2

Fédération Dentaire Internationale

- 1969 **New York**, Oct. 11-18
- 1970 **Bucharest**, Rumania, Sept. 26-Oct. 1
- 1971 **Munich**, Germany, June 18-23

Royal College of Dentists of Canada

Initial Interim Examination Mar. 28-29, 1969, in Toronto.

Part I Examination (Basic Sciences) Sept. 22-26, 1969. This examination will be held in regional centres across Canada. No applications accepted after Mar. 31, 1969.

Part II Examination Nov. 21-22, 1969, in Toronto. No applications accepted after Mar. 31, 1969.

Future Meetings

American Academy of Oculodontology, at Essex Inn, Chicago. Feb. 1, 1969. Francis Higgins, 101 N. Evergreen, Elmhurst, Ill. 60126, USA.

Midwest Society of Periodontology, at Sheraton Blackstone Hotel, Chicago. Feb. 1-2, 1969. R. L. Wescott, 636 Church St., Evanston, Ill. 60201, USA.

Canadian American Medical Dental Association, at Silver Tree Inn, Snowmass, Aspen, Colorado. Feb. 15-22, 1969. T. J. Trapasso, 816 Ashmun St., Sault Ste. Marie, Mich. 49783, USA.

International Association for Dental Research, at Houston, Texas. Mar. 20-23, 1969. A. R. Freshette, 211 E. Chicago Ave., Chicago, Ill. 60611, USA.

College of Dental Surgeons of Saskatchewan, at North Battleford, Sask. Apr. 1969. C. E. Johnson, Millar Bldg., North Battleford, Sask.

International Congress of Odontology and XXI Spanish National, at Madrid, Spain. Apr. 7-12, 1969. A. J. Cervera, Colegio de Odontologos, Fernanflor 4, Madrid 14, Spain.

6th International Congress of Stomatology and 4th Portuguese Congress of Stomatology, at Lisbon. Apr. 9-12, 1969. João Bação Leal, Lisbon, Portugal.

Irish Dental Association, at Killarney, Ireland. Apr. 17-20, 1969. J. Ivers, 29 Kenilworth Sq., Dublin 6, Ireland.

American Academy of Oral Pathology, at Sheraton-Boston Hotel, Boston. Apr. 17-19, 1969. S. M. Standish, Indiana University School of Dentistry, Indianapolis, Ind. 46202, USA.

Michigan Dental Association, at Statler Hilton Hotel, Detroit. Apr. 20-23, 1969. M. W. Brown, 430 Stoddard Bldg., Lansing, Mich. 48933, USA.

British Columbia Dental Association, at Vancouver. May 15-17, 1969. W. R. Upton, Suite 325, 925 W. Georgia St., Vancouver 1, BC.

Canadian Society of Dentistry for Children, Ontario Chapter, at Royal York Hotel, Toronto. May 17, 1969. Franklin Pulver, 2008 Bathurst St., Toronto 10, Ont.

Ontario Dental Association, at Royal York Hotel, Toronto. May 18-21, 1969. Mrs. W. C. Durham, 230 St. George St., Toronto 5, Ont.

2nd International Symposium of Dentistry for Children, at Siena, Italy. June 1-3, 1969. Giuliano Falcolini, Via le Regina Elena, 287/B, 00161, Rome, Italy.

British Dental Association, at Bournemouth, England. June 2-6, 1969. J. N. Peacock, 64 Wimpole St., London W.1, England.

Pacific Dental Conference and Alberta Dental Association, at Jasper Park Lodge, Jasper, Alta. June 22-28, 1969. R. D. Haryett, Suite 516, 11010 Jasper Ave., Edmonton, Alta.

Atlantic Provinces Convention, at Summerside, PEI. June 22-25, 1969. J. A. Doiron, Smallman Bldg., Summerside, PEI.

Canadian Academy of Periodontology, at Montreal. July 1969. J. D. Stewart, 311 Rubidge St., Peterborough, Ont.

Postgraduate and Refresher Courses

Toronto • The Faculty of Dentistry, University of Toronto, offers a postgraduate course in ENDO-DONTICS, Feb. 12-14, 1969. The course will include illustrated lectures on endodontic techniques. Instrument manipulation clinics will be followed by demonstration operations on patients. The course will be directed by G. C. Hare. Tuition fee \$60. Inquiries and requests for application forms should be directed to the Director, Division of Postgraduate Dental Education, Faculty of Dentistry, University of Toronto, 124 Edward St., Toronto 2, Ont.

Toronto • The Department of Prosthodontics, Faculty of Dentistry, University of Toronto, offers a course in PROSTHODONTICS, Feb. 24-28, 1969. The course will include lectures and clinics on the following topics: diagnosis in complete denture prosthodontics, retention of complete dentures, impression procedures, methods used to determine vertical dimension and jaw relations, tooth selection, articulation, pre-extraction records, immediate denture service, arrangement and articulation of teeth, aesthetics, rebasing, and possible causes of denture difficulties. A practical case will be constructed to illustrate the principles discussed in the lectures as they apply to complete dentures. The course will be directed by R. L. Twible. Tuition fee \$100. Inquiries and requests for application forms should be directed to the Director, Division of Postgraduate Dental Education, Faculty of Dentistry, University of Toronto, 124 Edward St., Toronto 2, Ont.



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179

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